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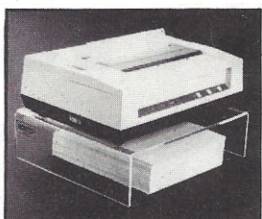
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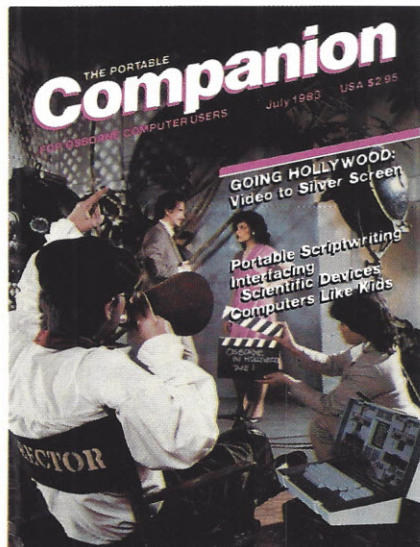
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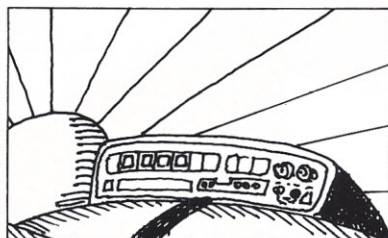
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COMPUTER PARANOIA STRIKES AGAIN

I always take a stand. So when a skeptical friend accosted me with the notion that computers may not be the blessing we've wholeheartedly accepted them to be, I put up an intense—albeit clumsy—fight. He argued aggressively that microcomputers in schools cost teaching jobs and encourage dependency on machines rather than good old human logic.

In spite of the fierceness of his attack, my immediate reaction was to ardently defend the computer industry. Later, however, when the knife was removed from my throat, I reviewed his arguments in a more rational fashion.

"Teachers will soon be replaced by computers," my friend insisted. Well if it's true that most old educators don't learn new programs (and I would argue that many do), micros in the classroom will definitely cost jobs. But they also mean an infusion of new energy and ideas as new teachers enter the school system with a proficient knowledge of how computers can enrich a child's school experience. From my vantage point, our declining school systems could use the boost.

Personal computers can eliminate many of the mundane chores teachers contend with, but I doubt they pose a serious threat to the teacher/child relationship. I've seen my share of science fiction films and still doubt my grandchildren will be tutored in English by a smooth-talking HAL 2001. Computers teach children to methodically apply solutions to problems; teachers communicate perspective, appreciation and the joy of new ideas. The value of one gifted teacher could not be diminished by a room full of computers.

"My wife can't figure out a tricky math problem without a calculator." My friend the devil's advocate scores a point here. Certainly schools must continue to teach students the basic skills before installing computers en masse.

Nevertheless, my son still does his math homework with pencil and paper although calculators have been available for some time now. Typewriters are lodged in most homes, but children are still encouraged to master handwriting before they type their first report with WordStar. Besides, if math is not your forte why does dependence on a calculator constitute a serious problem? I depend on my watch too, but I'm not ashamed to admit I couldn't begin to read a sundial.

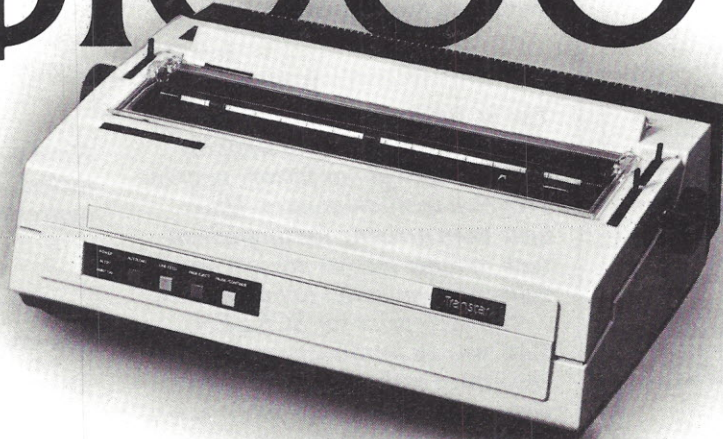
"Computers make people lazy thinkers." Now here my friend really shows his ignorance of the workings of a computer. No other invention has encouraged precise and thorough thinking like the microcomputer (often to the point of severe frustration).

Unlike the television set, which encourages catatonic viewing—with the only discrimination being a remote control device—you must put something into a computer to get anything out. I admit to being heartened by the fact that my 10-year-old son spends hours solving logic puzzles on the Osborne instead of parking himself in front of the tube every afternoon.

Winding down, I admit my friend should be acknowledged for promoting a healthy wariness of these unfeeling machines we've embraced so unabashedly. Still, his credibility suffers some from his lack of personal computer experience. I suspect the scenario he envisions is predicated on a fear of the new and unexplored. I'd love to loan him my Osborne for a week.

Jackie Rae
Editor

Is 42 seconds worth \$10000?



The new Transtar 130 daisy wheel printer generates a full-page letter in 78 seconds. The least expensive 40 cps printer does it in 36. Only 42 seconds difference...for twice the price.

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Letters

What you see...

I like to see what I'm paying for, so I kept asking to see the 80-character (screen) upgrade before buying it. It's long past the January 31st deadline for the introductory price, and now my distributor tells me the reason HE hasn't installed one for demo purposes is that they haven't been shipped yet! Is this true? If so, shouldn't OCC extend the offer, IF and when the boards are available?

I don't regret the personal or group decisions to go with the O-1. It's just that the generally high level of quality makes the failings that much more apparent.

Jeff Hill
Bridgeport, CT

The SCREEN-PAC option, or 80-column upgrade, began shipping to users through our factory upgrade program in mid-January. Units have been arriving for upgrade in such number that we are just now delivering quantities to our dealers.

The \$185 price for SCREEN-PAC was an introductory offer to encourage early orders. The offer was issued in mid-September as a limited price cut that expired on January 31, 1983. Over 6,000 people placed orders before the deadline. All new orders are being accepted for \$250, still a bargain for the complexity of the upgrade.—Jim Schwabe, Product Manager

We like you guys, too

Just had to drop a note to express my appreciation for the hard work and anguish that must be endured to publish the *Portable Companion*.

The magazine is the primary reason I selected "Ozzie" over other computers. A friend of mine gave me a couple of your magazines to read. Zap...I was hooked. I can't



recall having spent as much time reading one magazine and always finding something new, challenging or just fun to read.

I'm sure I speak for lots of other readers. Thanks for the work, thanks for the wit and wisdom that you and your staff share with us.

Keep up the good work...and know that we "Ozzie Hackers" would be lost without the *Portable Companion*.

Al Kimmel
Parkersburg, WV


Hard work yes, anguish no. Nevertheless, it's good to hear we're appreciated. Thanks for the letter.

Something rotten in software

Osborne does a positively rotten job at software support. For example, WordStar version 3.0 has been on the market for nearly a year, but Osborne users are still stuck with version 2.26. According to your Dec/Jan issue, you again postponed an update to await Micropro's pending release of WordStar version 3.4. Based on your performance to date, version 3.4 will be on the market nearly a year before you get around to providing Osborne users with an update. By that time, another Micropro update will probably be due, and you will again postpone Osborne updates. At that rate, version 10 will be commonly used by everyone and Osborne owners still won't have updates to version 2.26!

Another example is dBASE II. For months you have sold a high-

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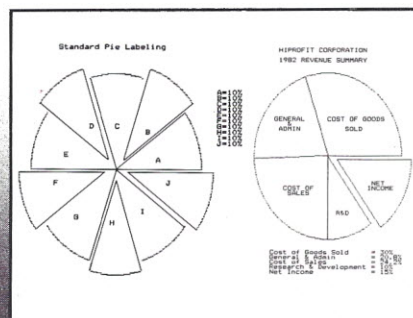
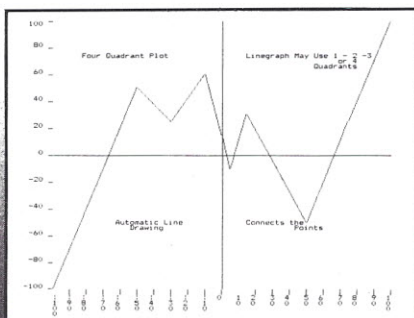
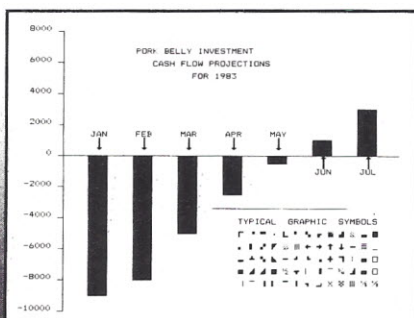
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priced outdated version while updated and less expensive newer versions were available from other sources. Just as Osborne got out of the peripheral business such as monitors, they should get out of the software business. Long overdue software updates and selling outdated software at high prices is a ripoff!

Henry B. Williams
SAFB, IL

The writer raises two good points about timeliness of software updates and pricing policy. First, we maintain competitive prices although software is often available "cheaper" from other sources. The policy of our Approved Software program is to provide first quality software with excellent documentation and first rate support. Our "package" price for dBASE II or any software package includes all these features.

Furthermore, we will not release software updates if they are untested or possess changes irrelevant to the Osborne. The WordStar revision 3.0, in our opinion, is inappropriate to the Osborne 1. We feel we can serve our customers better by waiting for release of version 3.4 from Micropro, which we are working on diligently, full time, right now. We will not make the "latest" version available simply to keep up with the general market. —Ken Hirsohn, Software Acquisition Supervisor

A reader service card?

In the tradition of the Osborne computer, the *Portable Companion* is an excellent magazine. Best of all, the editors appear to realize the importance of brevity. I hope that future articles will continue in this manner.

One suggestion: a reader service card. With all the ads for wonderful goodies, such a feature would certainly be appreciated. How about it?

Michael E. Schmitt
Ridgefield, CT

We discussed the possibility at a recent meeting and decided we just didn't have the staff to handle it now. We'll keep it in mind and try to institute it some time in the future. Thanks for the suggestion.

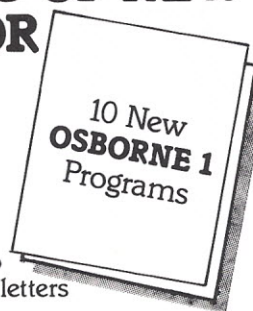
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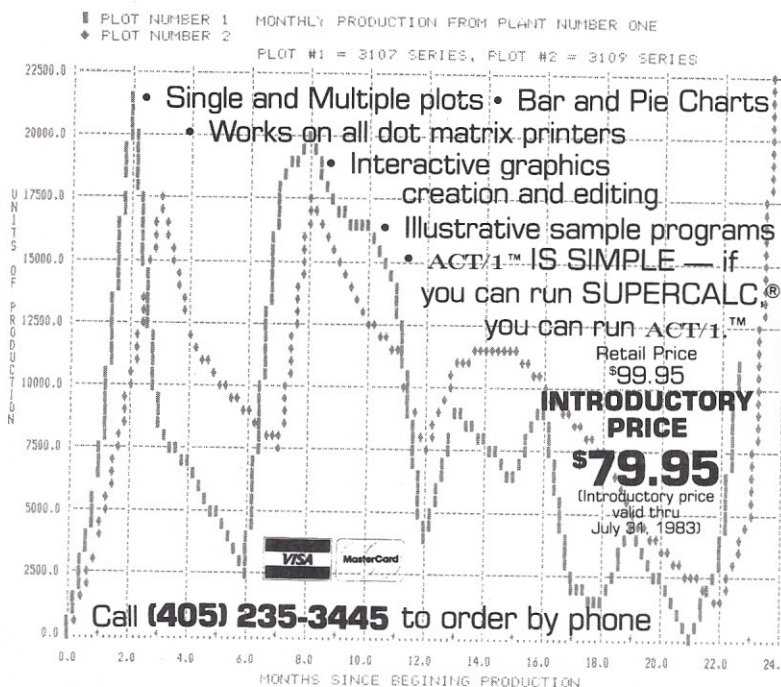
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Number, please

I've found a couple of AMCALL tips that I would like to pass on. If one wants to use the PHONE.NUM file included on the diskette, a "1" should be inserted ahead of the area codes on numbers which are long-distance for the user. It took me a while to figure out why I couldn't contact ANY of those remote CP/M bulletin boards listed!

Once the user has the phone number file edited and saves it back to the AMCALL diskette under PHONE.NUM, the program may give you the message "Having trouble reading PHONE.NUM. Please enter number manually or abort" when you try to use the automatic dialing feature. Apparently this happens because there is a back-up file, PHONE.BAK, which must have the same changes made to it as the PHONE.NUM file.

I used the following procedure: WordStar in (drive) A and AMCALL (with CP/M) in (drive) B. Load WordStar and put it in the N mode—editing a non-document. List B:PHONE.NUM when the prompt asks for file to edit. Make the desired changes and enter ^KD to save the file back to AMCALL. After the file is saved, then enter "O" to copy; file to copy from is B:PHONE.NUM and copy to B:PHONE.BAK. Enter Y when asked if you want to overwrite the existing PHONE.BAK file. The program works very well and I've certainly enjoyed using it—it was worth the wait!

Roger Metcalf, DDS
Arlington, TX

Academic inaccuracies

"The Academic and WordStar" article (Feb/Mar 83) contains glaring inaccuracies which cast doubt on the quality of both the article and the issue. Paragraph two reads:

"Most colleges and universities require that you comply with either "Turabian" (Chicago Manual of Style) or A.P.A. (American Philological Association) formats..."

All these citations are wrong.

First, "Turabian" as used in the academic world refers to *A Manual*

for Writers of Term Papers, Theses and Dissertations by Kate Turabian.

Second, *The Chicago Manual of Style* is a different manual from the one known as Turabian.

Third, A.P.A. in this context refers not to a philological publication manual but to the *American Psychological Association Publication Manual*.

These types of errors indicate sloppy research and scholarship and need to be culled from your magazine. I suggest using ^KJ and deleting the author's entire file.

Constance W. Holt
Oshkosh, WI

We would first like to absolve Mr. Leddy, author of "The Academic and WordStar," of guilt in this situation: Our editors wrongly placed the titles *Chicago Manual of Style* and *American Philological Association* as references. We apologize for any inconvenience or confusion this may have caused our readers. We must, however, heartily differ with Ms. Holt on her suggestion to " ^KJ " the author's entire file. This one incorrect sentence by no means invalidates an article otherwise endowed with helpful information. The sheet of "Common WordStar Commands" alone has no doubt found its way onto the bulletin boards of many Osborne users.

The trouble with densities

Enclosed is a communication I recently received from Dynacomp, Inc. As I read it, it says that programs I've written on my single-density Osborne cannot be read by the double-density Osborne. If this is true, how would I make my programs readable by the double-density Osborne short of re-entering the entire source code from the keyboard?

Tom B. Thamm, C.C.E
Oradell, NJ

The notice from Dynacomp, Inc., stated that diskettes written on single density systems are "not necessarily" compatible with double density machines. This occurs only on some machines.

OCC recently mailed an advisory bulletin to all end users with registered warranty cards, warning them of a potential single-to-double up-

grade hazard: re-alignment of disk drives.

When OCC or a dealer upgrades a unit from single to double density, all disk drives are timed and aligned to precise specifications—specifications which, due to time, use and operating environments, may have shifted. Data written with drives not in tolerance of specifications may not be readable with the upgraded drives.

For the few users who may run into this situation, OCC provides a service that will retrieve and restore data at a fee of \$1 per diskette, using the customer's original diskette. Information on this service accompanied all units upgraded by OCC and returned to the user.

52/80, continued

I thought I might enter the great 52/80 column debate and pass along a tip or two.

First, type the document on 52 columns and do your proof-reading there. Then use ^OR##^QQ^B to reformat. But I've found another method that works even better. It's so obvious I wonder why it took me several weeks to think of it.

You can shift the screen by using the control and arrow keys. Don't. Instead, place the cursor in the first column. Push the left arrow. The cursor jumps to the right column of the line above, and the screen moves accordingly. It's fast and easy.

When you edit, move from block to block with ^C. Immediately move the cursor to the left margin, if it isn't there already, and to the middle of a paragraph. Now place your fingers on the left and right arrows. As you read to the edge of the screen, push the left arrow and the right portion of the text comes into view. As you get to the end of the line, push the right arrow and you're back to the left edge. The only trick is to avoid putting the cursor where it will jump to the right end of a short line.

This method has worked so well I have ditched the idea of getting the 80-column upgrade.

William L. Caldwell
Memphis, TN

if you use CP/M® then you need DISK FIX!

DISK FIX is a disk editor which can display, edit or copy any sector of a CP/M floppy and/or hard disk. The DISK FIX utility can be used to recover files from disks with damaged directories, to reconstruct files with bad sectors, to restore erased files and to do general disk editing.

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You want the most from your Wordstar and your printer. You know it can give more.

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Send a copy of your CP/M-80 Wordstar disk and C.I. Software will modify it so you can get the most from your printer. For example with the C Itoh Prowriter I or II, NEC 8023A, or any DMP-85, this printout shows what you'll gain:

You may mix the ASCII, GTRAK, or Graphics character sets, & subscripts, and printer generated boldprint and underline in any combination while still maintaining proper automatic right margin justification.

You also have access to everything else that your printer and Wordstar can do, including setting and executing tabs, double width, etc., except bit image graphics, the vertical format unit, and right margin justification with the proportional type face.

Adding HexPrintR gives you access to the vertical format unit and bit image graphics.

Other printers will gain different capabilities. Call or send for details. All installations include WordStar generated Double Strike, Boldface, Double Boldface, underscore, and strikeout.

You will receive documentation, a summary of easy to use printer control codes and a test print file, and do-it-yourself reinstallation instructions. Note that the program HexPrintR is an optional extra which enhances some installations. Compare these features with what you would like and what you've been able to get so far.

Osborne owners also receive a Printer Busy Test which lets them easily edit any file while simultaneously printing (but not merge-printing) a document. Installations for other printers are under development, and C I Software does listen to requests.

HexPrintR gives the WordStar printer control character ^R the same power as the BASIC statement LPRINT CHR\$(n) in a much easier to use form, using either hex or decimal notation. For example:

^R 10, 15, 20 ^R

in a file printed by WordStar with HexPrintR installed into it would have the same effect on the printer as the BASIC program statement:

LPRINT CHR\$(10);CHR\$(15);CHR\$(20);

HexPrintR may be purchased separately.

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- | | |
|---|---|
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Adam Osborne

Behind the scene

Adam Osborne

Osborne Computer Corporation has broken new ground in products and management during the past few months. But in these two endeavors the relationship between effort and visibility is directly opposite.

We work for months on a new product and you know nothing about it. When the hard work is over we get the publicity and you see the results. On the other hand, when we hire a new president, or start strengthening our senior management, you hear about it at the beginning of the effort, yet you do not see the results for months to come.

You all have witnessed the success of the new product introduction. Let me therefore tell you about our new management. In order to keep growing at our present rate, we have to make sure that our management is more than capable of coping with the day-to-day problems that inevitably arise in any company growing as fast as we are.

A few months ago we encountered some problems that could perhaps have been avoided with stronger management.

Consider our dBase II special

promotion. The backlog developed because we agreed to ship a tutorial which was supposedly ready at the beginning of the offer. It was not ready until three months after the offer began. Therefore we finished sending out certificates for three months and then attempted to clear out the backlog in one month; and what *that* did was dislocate our ability to continue shipping approved software.

Then came the double-density and 80-column upgrades. We scheduled machines to arrive at our factory at a certain rate and calculated the amount of time it would take to upgrade each machine. Then our vendor failed to deliver the number of 80-column upgrade boards that he had committed to us, and each upgrade ended up taking longer than we had anticipated. Once again there was a backup.

These are excuses. Plausible or not, in future there must be no excuses, only results. Experienced managers who had been through this kind of thing before would have done it differently and there would have been no problems. We now have such management. We hope to

avoid these kinds of problems in the future, but of course given the rapid growth of our industry we can only keep hoping.

"We have to make sure our management is more capable of coping with the day-to-day problems that inevitably arise in any company growing as fast as we are."


In other areas by managing well we have perversely received criticism or at least critical questions from Osborne owners. Generally, these questions are of the type: "Company XYZ is offering the following type of enhancement to my Osborne 1, why can't you do the same thing?"

In a number of cases we looked at the product someone else was offering as an Osborne computer enhancement, and we declined to offer it under the Osborne name because it did not meet our criteria. These are:

1. The product must be safe to use, and reliable.
2. The product must represent excellent value for the money.
3. The product must not depend on single-source components.

In most cases where you bought an enhancement from a third party—a battery pack, a higher capacity disk drive, whatever—we looked at it and declined to buy rights because it contravened one or more of the criteria above.

There are, however, some Osborne add-ons which we have not yet offered, simply because we have been too busy bringing out the new product you now see. To accomplish this and bring out other add-ons as well would have required that we grow even faster. We have had enough trouble coping with the growth that we did experience.

Now things are settling down beautifully. You can expect to see smoother operations, better support, and a continuing stream of products that keep us in the forefront of portable microcomputers. 

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Includes Payroll	YES	NO	YES	YES	YES
Fully-Integrated	YES	YES	YES	YES	NO
Ready-to-Run	YES	YES	YES	YES	YES
Audio Cassette Tape Start-up & Training Aid	YES	NO	NO	NO	NO
System "Road Map" Guide	YES	NO	NO	NO	NO
Free Users' Newsletter	YES	NO	NO	NO	NO
Source Code Included At No Extra Charge	YES	NO	YES	NO	NO
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9. Income Statement with prior year comparison
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11. Departmental Income Statement(s) with prior year comparison
12. Detail report for individual accounts
13. Trial Balance Statement

Accounts Receivable

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3. Statements (with or without pre-printed forms)
4. Summary Aging Report
5. Detailed Aging Report
6. Itemized Monthly Transactions
7. Detailed Cust. Activity Report
8. Summary Cust. Account Report

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3. Checks with Detailed stubs
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6. Cash Requirements Report
7. Transaction Register
8. Open Voucher Report
9. Aged Payables Report
10. Detailed Vendor Activity Report
11. Summary Vendor Account Report

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4. Payroll Check Register
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6. Quarterly Payroll Summary
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SYSTEM CAPACITIES

Module	SD	DD	5Mb	10Mb	15Mb
General Ledger					
Accounts	100	200	400	400	400
Transactions	500	1,000	6,000	12,000	18,000
Accounts Receivable					
Customers	200	400	400	400	400
Transactions	400	800	6,000	12,000	18,000
Accounts Payable					
Vendors	200	400	400	400	400
Transactions	400	800	6,000	12,000	18,000
Payroll					
Employees	200	400	400	400	400

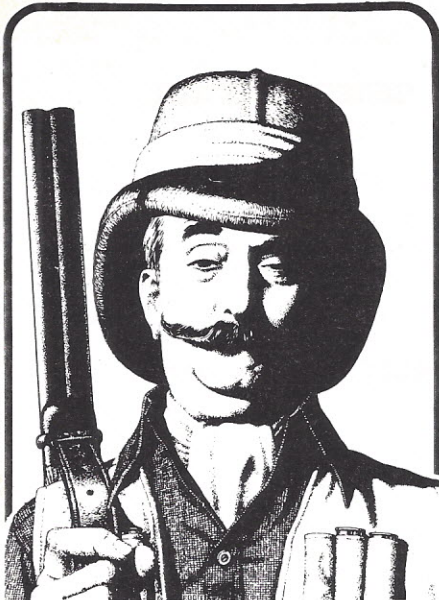
SYSTEM REQUIREMENTS

Requires either CP/M® or MS-DOS (PC-DOS); MBASIC for CP/M®, BASICA for MS-DOS; 56K to 64K RAM; 2 Disk Drives or Hard Disk; at least 200K of Mass Storage (we recommend more); 132 column printer (an Epson MX-80 or similar printer with compressed mode is acceptable); call for exact requirements on specific systems.

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The Wizard

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Brad Baldwin

At this year's West Coast Computer Fair, a few user group presidents commented that their groups felt Osborne Computer Corporation (OCC) did not support the dealer with technical information. I was surprised to find out that they did not know OCC has been sending technical bulletins, software bulletins, printer information and various dealer advisory bulletins to our dealers since 1981; this information is periodically updated in the Dealer Handbook so the dealer receives at least two copies of each bulletin. OCC also provides dealers with toll-free phone hotlines direct to special Osborne dealer support representatives. (Osborne does have end user support phone lines, but these lines are already overloaded with 400 calls a day.)

The *Companion* is another important informational base for the dealer. Many of the commonly-asked questions—and not just ones of a technical nature—have been answered in this publication.

For "hands-on" assistance outside the realm of dealer support, we highly recommend user groups and independent training centers.

Q: About a month ago I bought an Osborne 1 along with an Olympia printer (14 characters per second) and 12 inch Zenith CRT. I am pleased with the system and have kept it quite busy.

I hope you can offer a practical suggestion to solve the only serious complaint I have about our Osborne system. We are unable to enter text or mailing lists for upcoming projects while we are printing letters or envelopes. Isn't there a way for us to create and edit another document while simultaneously printing a file? I realize that a faster printer would reduce the waiting time, but that really isn't the solution.

It seems logical that almost anyone using the Osborne on a daily basis would greatly appreciate having this basic capability. I expected it to be part of your system; I'm surprised that it's not.

A: I know of very few computers under \$3000 that have the "print spooler" capability you are describing. It's an expensive feature, and often is redundant when used with large buffered printers.

However, there's no need for

despair—for \$150 you can buy an external print buffer device that stores 8K. (Buffers are manufactured by several companies, and store anywhere from 8K to 256K.) Couple that with faster serial transfer (if you are using a serial printer) as described in the Osborne *Technical Manual* to minimize the time spent in spooling to a buffer.

One last item: If you are merging with the "Ask Variable command" (.AV), you can try merging your files to the diskette using the "Disk File Output Option" and then print them out later on.

Q: I would like to use an accessory called "Critical Connection" to hook my Atari 400 up to the serial port. However, this accessory works only with a 19200 baud rate, not available on the Osborne 1. Is there anything I can do?

A: Advent Products' Osbaud device is the only product I know of that provides reliable baud rates as high as 19200. It's a board that is soldered to the Osborne's motherboard. We'll review this product and its various applications (connecting external 80-column display CRT's at 9600 baud) for an upcoming issue. Advent is located in Orange, California, (213) 794-2308.

Q: When I try to use the [U] option of PIP on a document file to convert to all upper case characters, the last letter of every word in a line that does not end with a hard carriage return is not changed to upper case. A sample of such a line looks like this:

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Where did I go wrong?

A: The troublesome parity bit, otherwise known as the high-order bit, must be "zeroed" out and stripped away from your document file. It's simple to do with one of PIP's many special parameters: [Z].

The [Z] option sets all soft spaces and carriage returns to hard spaces and returns. Non-document files created by WordStar automatically have hard spaces and returns; it is unnecessary to use the [Z] option. ([Z] turns document files into non-document files.)

You may combine the [U] option with [Z] within the same command:

A)PIP B:OLDFILE=B:NEWFILE[ZU]

PIP is one of the most interesting and powerful transient commands provided by Digital Research. If you haven't already discovered the many uses for PIP, do so soon by reading through your *User's Guide* or a CP/M handbook.

Q: I have trouble using The Micro Link (version 2.3) to upload to my university's Univac 1100 mainframe. The university computing center says the mainframe sends The Micro Link a "ready for the next line" signal before the mainframe is ready. I need to make The Micro Link wait longer before sending the mainframe the next line. I've tried command 24 (delay between sending characters) and command 45 (file/character, file/character-line), but they don't give enough of a delay.

Some Apple users at the university solved a similar problem with a patch to the ASCII Express communications program. Is there a modification that I could make to The Micro Link to introduce a delay?

A: I'm not sure if a patch is necessary. Try command 21 (delay after carriage return); it should provide a decent delay.

For your information, Osborne's AMCALL software provides a special Univac break/return protocol.

Q: I am a new owner of an Osborne 1 and C.Itoh Prowriter 8510. Two problems have emerged from my mass of novice ignorance.

The first is the inability to get WordStar to allow a software selectable Greek character set. I have tried to install this capability on one of the user programmable print commands without success.

The second has to do with proportional pitch. I put the different pitches on the WordStar defined print control keys but it doesn't work properly. I get proportional pitch, but 1) it's jammed together like compressed print; 2) the underscore doesn't line up and 3) the right justification is messed up.

Evidently I don't know enough

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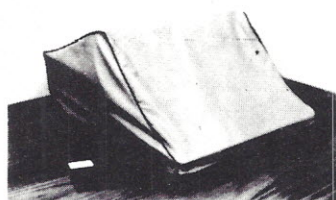
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about WordStar, C.Itoh, or most likely both.

(The following answer also applies to NEC 8023 owners—bb.)

A: Don't blame yourself. Like most printer manufacturers, C.Itoh's printer manual fails to discuss or even mention word processing. Not a single example is to be found in the entire 61 page manual that explains how hex codes are implemented, or how the printer is installed for the more popular computer systems. I'm wondering when the consumer will begin to demand that printer manufacturers provide complete interfacing information. Printer documentation is completely unintelligible to the beginning computer user, and even some advanced users.

I used the scientific approach in figuring out the Greek character set interfacing: I tried every combination of hex code and DIP switch setting until one worked. This is the end result:

37456c p0p00
H A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
V A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

1) DIP switch 2-6 must be CLOSED!

2) Use the hex codes for the 7-bit mode.

As a demo, code the following hex codes into the PSINIT: patch area:

03 0D 1B 26

After you have verified that it works, experiment on your own with individual Greek hex codes patched into the user areas. (See I/O, I/O Part 3 in the Apr/May issue for a discussion on modifying WordStar.)

The proportional spacing problem is indeed as you described; however, it is a coding function of the printer. As we have said before, WordStar does not support proportional spacing. It can be used with printers that support it, but the text will not be right-justified. We are presently gathering information on a product that purportedly overlays WordStar with the necessary coding to give true proportionally spaced characters.

Q: What's wrong with my MBASIC? This problem has thrown me for a loop. Look what they've done to my BASIC, Mom!

```
10 A = 1 AND 2
20 B = 1 OR 2
30 C = 1 XOR 2
40 PRINT A, B, C

0 3 3
```

Why don't I get a syntax error? Is it just my software or is it universal with the Osborne computer? Is it a bug or intentional? If it was designed that way, please explain why.

A: It's not a bug and it is operating as designed. That much is easy; I may be less successful in explaining why.

You are using what is called Boolean logical operations. Logical operators perform many tasks, some of which are bit manipulations and masking/merging of two bytes; your program is testing bytes for a particular bit sequence or pattern. Either "true" or "false" values are returned for each bit location. As it is much easier to explain these concepts by way of an example, let's use yours:

Logic	Binary	Decimal
A = 1 AND 2	0001	(1)
	0010	(2)
PRINT A	0000	(0)

The binary 1 bits of the number 1 are compared to the binary 1 bits of the number 2. If there is a match (the AND operation), a "true" value of 1 is returned. In this case, there is no match in any of the bit positions. Your program correctly printed a zero (0).

B = 1 OR 2	0001	(1)
	0010	(2)
PRINT B	0011	(3)

Here, the logical OR operator will accept the 1 bit as being true from either value being examined. It returns the binary number 0011, which is the decimal 3, as printed out in your program. Perhaps the next example will drive home Boolean concepts:

	0100	(4)
	0111	(7)
A = 4 AND 7	0100	(A=4)

B = 4 OR 7	0111	(B=7)
C = 4 XOR 7	0011	(C=3)

The XOR logical operator returns a false value (0) when there is a match in bits. The third bit from the right matched in the numbers 4 and 7 and the other didn't so a binary value of 0011 results.

Other operators not discussed here, such as IMP or EQV, work under the same principles.

Q: Is it possible to redefine the keys for the Dvorak system? I realize it probably requires extensive modification (and will void my warranty), but I still would like to know if it can be done.

A: First, a little background for our readers: The Dvorak keyboard positions all the commonly used letters and combinations of key-strokes right on or nearby the "home-row" fingertips. The idea is to eliminate the difficult and time-consuming finger stretches that exist on keyboards today. Studies have shown that the Dvorak system increases typing speed and reduces operator fatigue.

Installing the Dvorak system on the Osborne 1 involves re-programming the monitor ROM using an EPROM programmer to change the values in the key code translation table. Not a terribly difficult task if you have access to that sort of equipment and the Osborne's ROM routines (Osborne 1 *Technical Manual*, \$50). Incidentally, the EPROM programmer device should have RAM capability that reads into memory existing code to be re-configured. Re-keying and debugging from scratch our ROM routines would be a beastly task.

The final step is to switch the various key tops on your keyboard, and learn how to type all over again.

Q: I have been trying to set up the merged files program located in the '82 Oct/Nov issue on page 72-75. Everything works except the .FI Filename CHANGE command option. Instead of a request to change disks, I receive a message that tells me I "cannot change disk in drive B:, request ignored" and "File b: datafile not found."

Although not mentioned in the

article, I also tried the .DF command with the CHANGE option. It too failed to work.

A: This is the first we've heard of a problem with that article, and it's been quite a few months since it was published.

There are two areas where you may have erred. 1) Make sure files to be inserted end with a carriage return, otherwise the next dot command will be interpreted as text. 2) Always enter a carriage return as the last item in your command file. Since the CHANGE command was the last item in the file, it's a safe bet that you inadvertently left off a carriage return giving you the "File B: datafile not found" error.

As you can see, the lack of a hard carriage return can cause numerous problems. In addition, the Feb/Mar *Wizard* column reported what happens when too many carriage returns are added to the end of a file (every other page is blank).

The .DF CHANGE option does not work properly. I feel it's not critical since the application of the command is illogical. The datafile will obviously be the most lengthy part of a MailMerge operation and the command file usually will not surpass 4K. For a lot of reasons it doesn't make sense to separate the two with a diskette change. Regardless, MicroPro is aware of the problem.

I would like to thank Roy Robinson of Osborne International Technical Services for his valuable input and assistance.—bb.

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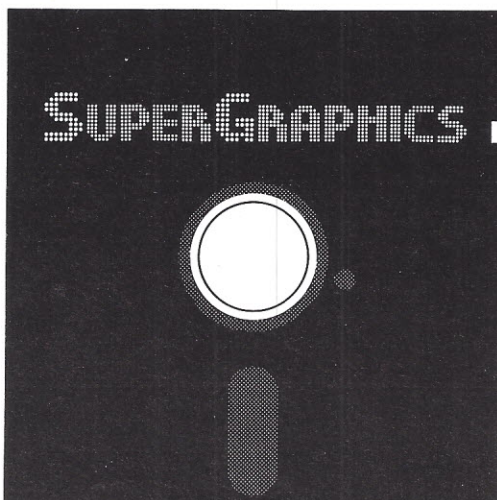
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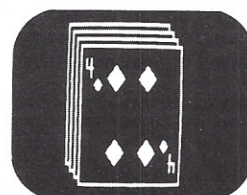
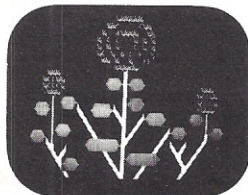
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Stephen Greenfield with another kind of portable companion: The Panavision Panaflex camera.

The Osborne 1 has not gone unnoticed in Hollywood. Home computer, portable computer, dedicated word processor: such are the buzz words of today's film industry crowd. When the Screenwriter's Guild sponsors weekend word processing seminars and invites manufacturers to present their wares, the seminars are packed with writers beginning to look suspiciously at their typewriters. And for good reason. There is a lot of money to be made by some, and time devoted to typing can be construed as time wasted.

The Director's Guild recently established a committee to study the impact of computers on the film industry and to make recommendations for training programs. While interested in computers as word processors, the Director's Guild is also scrutinizing them as a budgeting tool. Osborne users in Hollywood consist of a cross section of the industry, from film students to writers to script

FROM VIDEO SCREEN TO SILVER SCREEN

*the Osborne in
Hollywood*

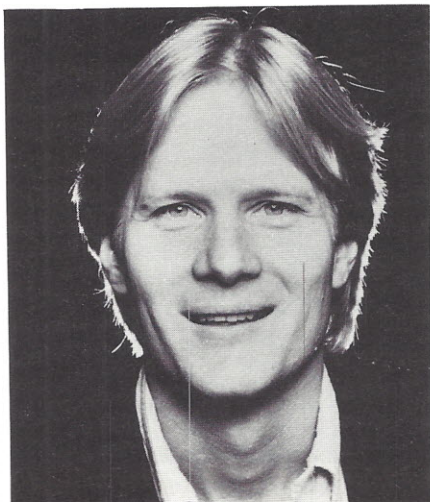
Schuyler Ingle

supervisors, directors, and production budget analysts.

It all starts with the script, Barry Mahon, director of the Production Machine Company, will tell you. Mahon has combined database, text editing, and payroll software to create the Mahon Computer-Based Production System. He is able to follow every penny of a film budget with the system, no matter how large that budget might be. Mahon first began producing films of his own in the early fifties and earlier in his career tried to accomplish with accountants what he is now able to do on computer.

"I'd have ten accountants working all day burying themselves in tape," Mahon says, "and still wouldn't get what I wanted. The computer crunches all that data in seconds."

When a script comes to Mahon's office, the first thing he does is transform it from its creative context to a shooting context. Each scene is disassembled and



Laugh Trax co-author Jim Staahl

everything that scene requires—whether extras, airplanes, or elephants—is figured in. The budget is assembled from this script breakdown. Mahon lists each component individually and then follows it each day the film is being shot. When a director exceeds the budget by adding extras where they weren't scripted, Mahon can pinpoint the expense. Each day of film production the producer receives a brief synopsis of the budget status. Excesses are easily pinpointed and corrected. Sound simple? Barry Mahon is the only one in Hollywood with such a service. His choice of computer for the field? Osborne 1.

"When they get their battery pack together so I can work with the machine all day in the desert and come back to a motel and dump the data into one of our office machines," Mahon says, "then it's

the perfect machine for the field."

Portability was a key factor when Jim Staahl and his writing partner, Jim Fisher, went computer shopping. "Everyone wanted to sell us a \$14,000 machine," Staahl says, "and we kept seeing these weird formatting styles for screenplays."

The two settled on the Osborne, and *Laugh Trax*, a syndicated TV variety show they pen, became the first computer-written variety on the air. Portability allows the writers to roam from office to office, all their files on floppy, whether at home or at the studio, depending on what project they are working on. It can be a gypsy life and the Osborne has made it a breeze.

Variety show scripts, though short, are in constant flux with line changes occurring up to the last minute. WordStar makes this a painless procedure and the writers are able to print copies on the spot. The formatting problems, though, are tricky. "TV scripts," says Staahl, "are actually easier than film scripts. The format is simplified. We use the user keys to shift left off-center for the stage directions, and then right off-center and double-spaced to write the dialog."

Screenwriter Mike Gray (*The China Syndrome*) calls his Osborne a "dangerous machine." Gray first encountered word processing at the controls of a Wang dedicated word processor. "Using a typewriter after that," Gray says, "was like returning to chisel and stone." The Wang, Gray feels, is easier and faster to use, but the Osborne is a tenth the price.

"There are things the Osborne and WordStar don't have that the Wang does," Gray says, "but these are not things one uses all that often. I say the Osborne is a dangerous machine because it is easier to make a very serious mistake using a text editing program than using the Wang. Wang asks twice if this is really what you want to do."

One picture of screenwriter doom Gray paints involves the subtle difference between ^Y and

~QY: the one deletes the entire line; the other deletes the line to the right of the cursor. "If my little finger lingers too long on the Q," Gray explains, obviously from painful experience, "I can easily type ^QQY and watch a day's work begin to disappear at the rate of two lines a second." Something like a word meltdown: an appropriate image as Mike Gray is the author of the soon to be released factual thriller about Three Mile Island called *The Warning*. (Soon to be a major motion picture, Mr. Gray?)

The screenplay, with its many margins on each page and headings that must appear at the top and bottom of each page—some of it written in all caps, some of it not—presents its own problems. The word-wrap function of WordStar, such a godsend for normal writers, can be a real bugaboo for screenwriters until they learn to work with it. The major problem is working within tight margins, with words wrapping around to the beginning of the next line.

One answer to the problem is the creative programming of the special function keys and screenwriter Pat Neary has developed an excellent system that appears in this issue.

Stephen Greenfield, graduate of the USC Film School and a programmer for ten years, points out that with the script written and waiting on floppy, the real problems have just begun. The real challenge according to Greenfield, is to have the script come out of the printer with all the page breaks in the correct place, the pages properly numbered, margins intact and scenes numbered consecutively. Greenfield's writing partners begged him to write a program that would properly format a screenplay for the printer and he agreed. Seven months later Scriptor was the result.

Scriptor, a text formatter, works like a spelling checker in that it chews through the script file and not only makes certain everything

is where it belongs, but actually makes decisions about where to break dialog that is to be continued at the top of the next page. "The way Scriptor works," Greenfield says, "you can, in all confidence, start it working, leave the room, and come back for a perfect screenplay." (A review of Scriptor is featured in this month's *Processed Word* column.)

The alternative is the painfully tedious task of coding the script file with all the appropriate dot commands. Once through might be bearable, but scripts are not static things. With Scriptor, changes to the original script can be made, additions or deletions, and the formatter puts everything back in order; renumbering each scene and page.

Rick Lazzarini bought his Osborne while studying filmmaking in the communications program at Loyola-Marymount College in Los Angeles. He also took a few programming classes to learn his way around BASIC. Rick supported himself through college and works today as a freelance special effects designer. He credits a film released as *Forbidden World* with the purchase of his Osborne. An effect he designed for an episode of the *Last American Hero* bought his printer. As a student, Lazzarini used WordStar to write and re-write the scripts for his student film projects. He maintained logs of the projects, wrote crew lists outlining the responsibilities of each crew member each day, and made updated scripts instantly available for everyone. In the editing stage, Lazzarini maintained a shot catalog on his Osborne to facilitate the cutting of the film into a final product. When he graduated Lazzarini used WordStar and MailMerge to mail out resumes to 250 production companies.

Lazzarini has used BASIC to write several programs for his Osborne. One program prints out custom invoices for his special effects business. Another calculates returns of film investing versus box office receipts, something he wrote



Screenwriter Michael Gray standing outside Three Mile Island.

for his father when he invested in a film. Perhaps most effective for Lazzarini's business, however, is a program that prompts him with questions when he is on the phone tracking down equipment, parts, or supplies for a special effects project bid. He uses a phone amplifier mounted above his Osborne and operates much like someone taking catalog phone orders. As each supplier answers the computer-prompted questions posed by Lazzarini, Rick inputs the replies. He is then able to do a cross-referenced cost comparison to assess the best deal. An artist at heart, he has plans for an animation project and is writing a program that will take into account the tables of formulas for speed and movement of characters.

Even *Hill Street Blues* has not escaped the Osborne syndrome. Herb Addleman, first assistant director on the show, uses his Osborne to prepare notes the night before each day's shoot. "As first assistant director," Addleman says, "I try to set the pace for the day. I plan the shooting, orchestrating the script so location shots are done at the right time of day, the right actors are present, the right number of extras are there, the props we need. I make sure all the elements are there when the director needs them."

Addleman looks forward to being able to replace what is known as "the board" with software format-

ted for the Osborne. The board, simply put, is a mechanical device with 1/4 inch strips of cardboard representing each scene and everything required. Used to facilitate scheduling, the strips can be moved around at will. It was probably invented about the same time as the motion picture camera.

Addleman also writes TV and feature scripts he hopes to see produced. Like the other screenwriters using Osbornes, he is thrilled with the advent of the 80-column screen. "Other writers may not need it," Addleman says, "but for screenwriters, 66 columns is a minimum and it's tough to work around it."

Hollywood's love affair with the microcomputer is just beginning. The potential for customizing a wide range of fields within the film industry has barely been tapped. Nevertheless, the results of the Osborne's versatility are already beginning to show up on the TV screen and silver screen. The influence may begin with the script, but all the steps between concept and public release are just as important. The impact of the portable Osborne has been felt by just about every aspect of filmmaking including the budget, shooting schedule, scene continuity, prop management and even in special effects. From the first scene to the cutting room floor, the microcomputer may emerge as Hollywood's newest star.



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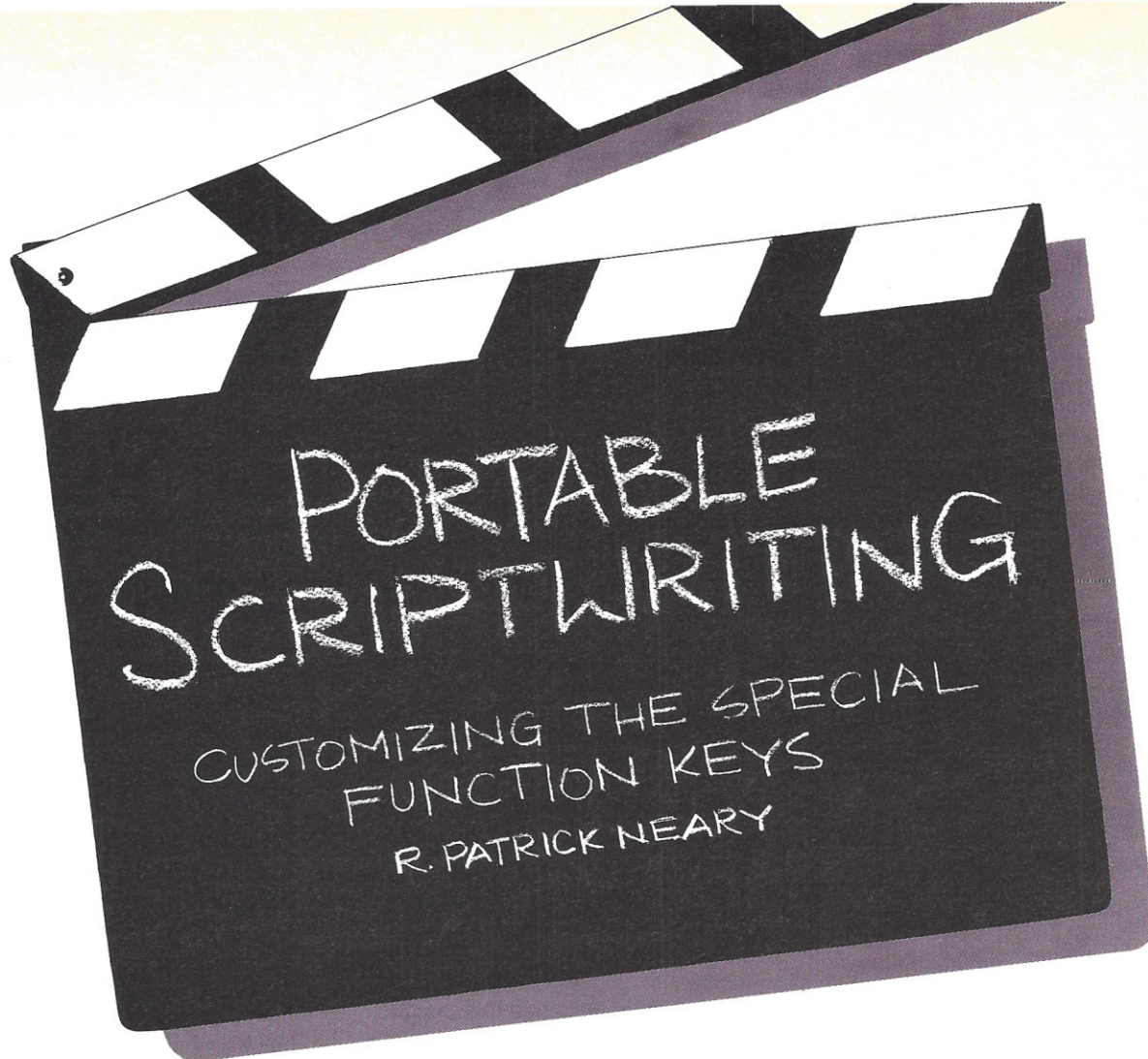
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As luck or design would have it, the Osborne is a far better tool for scriptwriting than many of the other biggest names in computing.

Easy portability is one factor, of course, but even more important for the screenwriter is the Osborne's ability to change margin settings instantly with a single command.

Although the discovery of word processing is causing a lot of excitement within the Hollywood writing community, most screenwriters shopping for a personal computer have been severely disappointed by the cumbersome "solutions" offered by most manufacturers to their unique problems.

The single most cited complaint is that as many as a dozen keystrokes are required to shift between wide margins (for action description) and narrower margins (for dialogue). Very often these shifts are necessary every few lines.

One common "solution" has

been for the writer to compose an entire screenplay under a single set of margins, then scroll through afterward and reform the dialogue parts. For many non-computing writers, this is unsatisfactory: they want to see it on the screen exactly the way it will appear on paper. In many cases, screenwriters have decided against the purchase of a word processor: "More trouble than it's worth," they say.

"Help!" said Computerland of Glendale, California, where I now act as a consultant. Could I show other writers how to achieve an easy script format on the Osborne 1? Yes, I could and I did, and in roughly four out of every five cases, writers decided to take home the Osborne.

The Inside Story

The secret to easy on-screen script formatting lies in the Osborne's user-programmable special function keys (SFKs). I'll keep the instructions simple for

those who are new to computing.

You will need a copy of your CP/M System diskette, a copy of your WordStar diskette (never use originals) and a formatted blank diskette.

First, load a copy of your CP/M System diskette into Drive A and your WordStar working copy in Drive B.

Be sure to remove the write-protect tab on the WordStar diskette.

When you get the A>, type `SETUP <cr>`. (See *User Reference Guide*, Appendix 1, pages A-2 through A-4 under "Step 1: Configuring the CP/M Printer Handler" for more information about SETUP.)

In answer to the question the computer will ask you, tell it you want to configure diskette B.

After several seconds a new screen will appear with the label "Osborne 1 Configuration Program." Make sure that "WordStar" appears below the item marked ARROW KEYS. If it shows

If you haven't already programmed your function keys, the listing under FUNCTION KEYS will look like this:

E: FUNCTION KEYS

$$\begin{array}{l} 0=0 \\ 1=1 \\ 2=2 \\ 3=3 \\ 4=4 \\ 5=5 \\ 6=6 \\ 7=7 \\ 8=8 \\ 9=9 \end{array}$$

Press "A-F" to change values
or "X" to exit

Press **E** to change the function key values. A new screen will appear showing the function keys only and some instructions.

For starters, let's change "0" (zero) so that just by pressing ^0 (CONTROL ZERO) after WordStar loads, the computer will automatically change the logged disk drive to B and also choose to "create or edit a Document file," then ask you for a filename, all in one simple step.

Press **0** (zero), then type **LB:<cr>**
D. Now press the escape key **<ESC>**
 twice and notice how the display
 changes from $0=0$ to the new
 value. $0 = \text{LB:<cr> D.}$

Before we go on, I want to make sure you actually pressed the RETURN key to get <cr> and you didn't type out the characters individually. I only mention it because that's a mistake I made

the first time. The same holds true for the control characters; that is, to get ^OL, hold down **CTRL** and press letter **O**, then release **CTRL** and press **L**.

Figure 1 shows the values I recommend for the remaining keys and I'll explain what each will do. Go ahead and input the information in Figure 1.

The total of all your entries must not exceed 106 characters (for single density) and each key must contain at least one character. Characters (e.g., ^Y) count as one place each.

Proofread your listings. When you are sure they are accurate, follow the directions on the screen to save it to the B drive. Again you will be asked which diskette you want configured. Press **B**, and then sit back for about 20 seconds while your machine goes through its process of reconfiguring part of your WordStar diskette in Drive B.

Finally, your screen will show the CP/M System A > at the lower left. Remove the CP/M System diskette from Drive A. Then move your newly configured WordStar diskette from Drive B to Drive A. Place a formatted blank diskette in Drive B, press the **reset** button and press **RETURN** to boot WordStar.

Using the Keys

When you see "Editing No-File," on the screen hold down the **CTRL** key and simultaneously press **0** (zero). If all went well, an "L" will appear in the upper left corner of the screen and the machine will automatically change the logged disk drive from A to B; then it will

PROGRAMMED FUNCTION KEYS:

```
0 = LB:<cr>D
1 = ^OL8<cr>^OR65<cr>
2 = ^OL18<cr>^OR52<cr>
3 = JH2 ^OJ ^OH ^ONA<cr> ^OI28<cr> ^OI33<cr> ^OI50 <cr>
4 = ^I ^I ^I CONTINUED <cr>.PA<cr>CONTINUED<cr> <cr>
5 = ^KDP ^R
6 = ^OC
7 = RA:XDIR B:<cr>
8 = ^Y ^Y ^Y ^Y
9 = ^KS ^QP
```

Figure 1

“Are you dazzled yet? Simple, huh? Just Press ^1 before stage direction segments and ^2 before dialogue sections.”

open a new file and ask you to name it. Give it a name and press **RETURN**.

Now that you are inside your file, press **^3** (CTRL 3). The screen will get very busy for a moment. If you are sharp-eyed, you will see the help level changing from level 3 to level 2, justification being turned off, hyphen-help being turned off, all the tabs cleared and new tabs set at positions 28, 33 and 50.

Wait until it's finished, then type **ACT ONE** and press **^6**. The words will center automatically, just as if you had given the command **^OC**.

Now press **RETURN** a few times, followed by **^1** (CTRL 1). The margins will change, but the cursor will still remain at the left side of the screen. (Get used to it. I'll explain shortly.)

At this point, you may be tempted to hit TAB. Don't. Type **FADE IN**.

Did you see the cursor jump to the new margin? Hit **RETURN** twice more. The cursor is at the far left again. Now type **INT. WRITER'S OFFICE—DAY**. Again the cursor and the words zip across to the new margin.

Now hit **RETURN** twice more and begin typing at least two or three lines of stage directions, finishing with two **RETURNS**.

Then press **^2** and notice that the margins have changed again, and the cursor is still on the far left, outside the new margins. Are you getting used to it? Okay, but eventually you will. As they say here in Hollywood: "Trust me."

If you've been waiting to press TAB, you can do so now. In fact press **TAB** two times exactly. This brings the cursor to approximately the center of the page (not necessarily the screen's center, however). This is where you type in your speaking character's name, traditionally in upper case. Hit **RETURN** once, then **TAB** once and make up some short parenthetical stage direction like "(breathlessly)." Again press **RETURN** once and immediately begin typing what your character is saying. Make this speech at least two or three lines long so that you will be able to see wordwrap in action within the new

narrower margins. (And since the right margin is set for column 52, you won't have to scroll the screen to see it all.) End with two **RETURNS** and immediately press **^1**. Then type in some more stage directions, two or three lines worth.

Are you dazzled yet? Simple, huh? Just press **^1** before stage direction segments and **^2** before dialogue sections.

Practice alternating these two for a little while. See how quickly you get used to the cursor being outside on the left? When you need to know whether you're set for dialogue or stage directions, just glance at the ruler line at the top of the screen.

"As they say here in Hollywood: 'Trust me.'"

And what if you typed a whole gang of stage directions without looking at the screen and suddenly discover you were in the dialogue mode? No problem. Just move the cursor to the beginning of the offending section, hit **^1** followed by **^B** and the paragraph will quickly reform to the proper proportions. Remember this when you come back later to rewrite parts of the script. Always be sure you're in the appropriate margin mode before pressing **^B**.

For correct placement of CUT TO: or DISSOLVE TO: press TAB three times before typing. If this is too bothersome, you might consider substituting **^1^1^1CUT TO:<cr><cr>** or **^1^1^1DISSOLVE TO:<cr><cr>** for one of the values listed in Figure 1. Similarly, you may wish to program a major character's name.

You have probably noticed that the tabs remain constant, so it doesn't matter which mode (**^1** or **^2**) you're in when you are typing in the character's name or parentheticals. In fact, if you didn't remember to tab in for the character's name until after you typed it, you can just press **^6** and it will center automatically. You may even prefer doing it this way.

Now, let's say you are nearing the end of a page. Press **^1** to shift to the action margins (unless you're already in that mode). Now press **^4** and watch what happens: The word CONTINUED prints out on the far right of your screen, a brand new page opens, and another CONTINUED appears at the top left of that page. In addition, two RETURNS have been added, thus leaving your cursor in position for entering new text. Remember to change back to **^2** if you want dialogue margins.

But suppose you didn't see the automatic page break coming and as a result you have, say, a piece of dialogue that is now divided between pages. This is usually an undesirable condition. To remedy it, go ahead and finish what the character is saying (so the idea is not lost), then move your cursor back up to the place where you would prefer the page-break to occur. Now, simply follow the instructions in the paragraph above and press **^QC** to return to the end of your document.

As an alternative, you may wish to ignore page breaks altogether until you have completed your script. Here is a quick way to go about it. Start at the very beginning of your script document. Use the FIND command **^QF** and instruct it to search for **^N**. Hit **RETURN** and in answer to "Options," respond with **55**, followed by another **carriage return**. This will bring you to the first page break. After you have changed it, or left it alone, press **^L** to find the next one, and so on. (Special thanks to Bob Briggs of FOG for his inspiration on this in the Oct/Nov *Portable Companion*.)

We have already learned that **^6** will center titles. Let's skip **^5** and **^7** for the moment and talk some more about page breaks.

Imagine you have finished your entire script and have begun making changes (you have just returned from "taking a meeting," no doubt). As a result, your original page breaks may no longer be appropriate. You can fix that. Here's how:

If you have made only a few changes, just scroll through your script from the first place you

changed (use **^QQ^C**) and watch where the page-breaks appear. Where necessary, create new breaks as we learned above.

Scroll on. When you come to a forced page-break (one you made with **^4**) which now makes a page too short, delete it thusly: Place your cursor on the line containing the right-side CONTINUED and press **^8**. Instantly, the page break and the CONTINUEDs on either side of it have disappeared. Continue scrolling and add or delete page-breaks as needed.

On the other hand, if you have made a lot of changes, use **^QF** to find the word CONTINUED, clear the break with **^8**, then press **^L** to find the next, repaginating as suggested in the "alternative" several paragraphs ago.

As you may have guessed, executing a **^8** deletes four lines. Keep that in mind for other times when you want to remove small blocks of text without going through the **^KB-^KK-^KY** routine.

Now we're ready for **^9**. I've found this extremely handy. Pressing **^9** will save your file onto your diskette and return you to the exact place you left off in your document. It's a must whenever the phone rings or nature calls and a good idea after every page or two—or every 15 minutes—whichever comes first.

I promised to return to **^5** and here it is. When you are ready to print your script, this key will take you from inside your file to print-out in just two keystrokes, assuming you wish to begin at the beginning of the document. Turn on your printer, then press **^5**. Wait a second for the screen activity to cease (you should see your filename already entered in response to "Name of file to print?"). Then hit **<ESC>** and call your agent. As for **^7**, you should only use this command when you are at the No-File Menu, otherwise you will find RA:XDIR B: and a car-

riage return printing out in the middle of your love scene. No real harm, but a nuisance. Assuming you do use it at the No-File Menu, however, it will tell you how much space has been used and what space remains on your document diskette in Drive B.

Some Finer Points

A question I am often asked: Why not have the "action" margin at "true column one" so it won't have to jump like it does (except in dialogue mode)?

There are two answers. First, you are saved the trouble of adding the page-offset dot command (**.PO + some number**), so there is no chance of forgetting to offset your page for the printer.

Secondly, some screenwriters and typists are required to install scene numbers or shot numbers outside the regular margins and so this space is reserved for them. If

"The format used here was patterned on an actual typical shooting script used by Hollywood's largest studio."

you are such a person, here's what to do:

Place the cursor where you want the scene number. Press **^OX** to turn on MARGIN RELEASE and type in the number. Then turn it off again with another **^OX** (otherwise it will turn itself off once you have returned inside the margins from outside the left margin, or have executed RETURN from outside the right margin.) To place a scene number outside the right margin, position the cursor inside the current margins before pressing **^OX**, then space out, so to speak, and enter your information. Then hit **RETURN**.


Another often-asked question: How does one get the page numbers to appear in the upper right corner of the page? For this you must use a combination of dot

commands. First, place **.OP** (omit page numbers) at the very beginning of your file. Below that, type **.HE** and space over to column 68 or so, then type the symbol **#**. I keep my set of dot commands in a separate file on my WordStar work diskette and simply "read" the file into my document using **^KR**. If you have a single density Osborne, you can make room for your dot command file by deleting the **SAMPLE.TXT**.

You are, of course, welcome to customize your special function keys to meet your own specific needs. The format used here was patterned on an actual typical shooting script used by Hollywood's largest studio for an episodic television drama series. This format appears to be the most, er, "universal" one in use for both television and film.

Script format for TV situation comedy is slightly different and also varies from studio to studio. The basics, however, are the same and you should have no trouble translating your requirements using this article as a guide.

Ready when you are, C.B.

Mr. Neary's article is based on 106 characters under the single density SFKs. Double density allows only 86 characters for the SFKs. Readers who own double density machines will have to sacrifice some of the short-cuts and stick to critical ones. If anyone comes up with a reasonable double density version please share it with us. 

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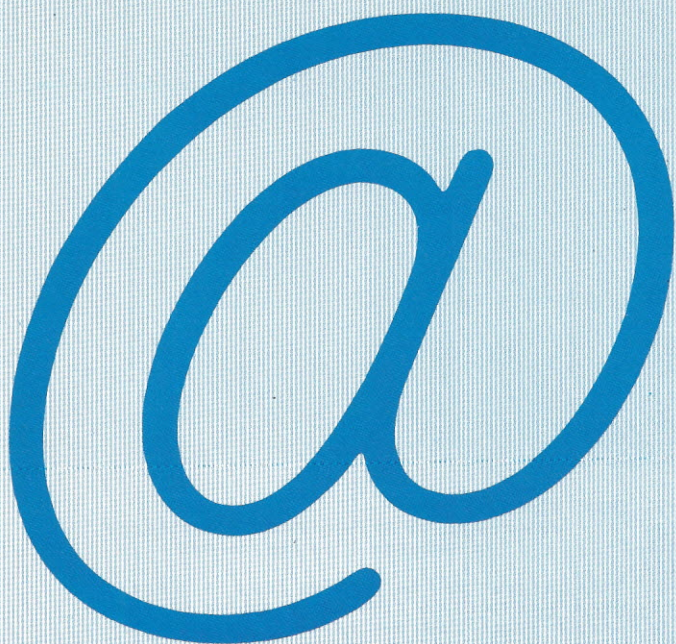
Converting the TRS-80 Print @

George Zucconi

Wow! Found just the program that does the very thing I wanted. Price is only the cost of the magazine it's printed in. Let's see, it's written in BASIC for the TRS-80. Great. That's practically identical to the Microsoft BASIC for my Osborne 1.

At home I prop up the magazine next to the keyboard and start banging away at the keys. Halfway down the first page there's a CLS. O.K., I know that means clear the screen so I type in PRINT CHR\$(26) on the Osborne. PRINT statements are a snap. The Osborne doesn't need semicolons as delimiters between the variables. Oh-oh! PRINT @ 540. Nothing like that in my Microsoft BASIC manual. I reach for my copy of David Lien's *The BASIC Handbook*, an encyclopedia that covers almost all the variations in the BASICs used by different microcomputers and the strategies that programmers can use to convert the many different dialects to their computers. I find that PRINT @ indicates the PRINT statement's starting location on the screen. There are 1024 locations—16 rows of 64 horizontal addresses, each with its own consecutive number.

O.K., 540 divided by 64 is 8.44. That puts the statement in the eighth row down from the top of the screen, and .44 is about midway across the 64 column screen width. I figure it out, but before long, I'm really stumped by this one: PRINT @(A + Z). A and Z are variables which change values continuously as the program runs. The PRINT statement appears at different locations on the screen during the program's run.



statement

Lien's book, as good as it is, didn't bail me out of that one. Scratch one good program. Many a program written for the TRS-80 never saw the light of the Osborne's screen because of the PRINT @ statement. Much despair ensued as I passed up all that abundant and ubiquitous software for the TRS-80. The answer is to use a direct cursor addressing sequence along with the simple conversion of TRS screen positions to Osborne 1 positions. Many programs in *The Portable Companion* have demonstrated the use of direct cursor manipulating techniques, but it's probably worth another review here.

If you're programming in MBASIC and using decimal numbers, the following line will display "HERE I AM" on the screen in row 12 with the first letter "H" in column 20.

```
PRINT CHR$(27) + "=" + (12 + 32) + CHR$(20 + 32) "HERE I AM"
or
PRINT CHR$(27) + CHR$(61) + CHR$(44) + CHR$(52) "HERE I AM"
```

Broken down to component level, the above line issues this sequence of commands:

Escape = y position x position

The CHR\$(n) function is how an ASCII code is sent in MBASIC, and 27 is the ASCII decimal number for the control code "Escape." The number 61 is the code for "=" . Written in that sequence it sends the code "Escape =" to the computer. This is the code for positioning the

cursor. The next two codes indicate the row number (y position) and the column number (x position) at which you wish the statement to print on the screen. Since the first row has 32 as its ASCII code, add the row number to 32 to get to the row you want. The first column also has 32 as its ASCII code, so once again you add the column number to 32. That's why the first line above was written with arithmetical expression as arguments to the CHR\$ function. The first method indicates the row and column position more clearly but either one will achieve the same result. Either decimal or hexadecimal numbers can be used as arguments to the CHR\$ function.

Naturally, it's much better to write the cursor positioning code as a string with the row and column numbers replaced by the variables R and C respectively. Assign numerical values to R and C, direct the PRINT statement to print the string variable followed by the statement or variables you wish printed.

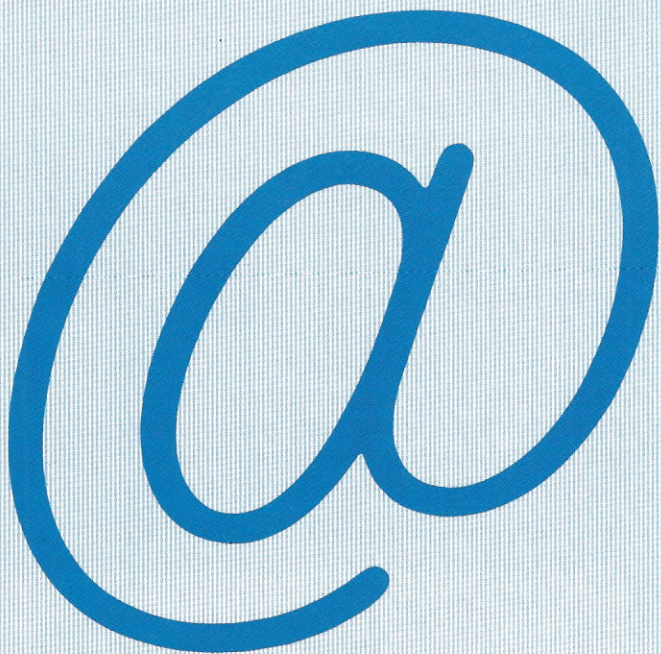
The PRINT @ statement for the TRS-80 doesn't use separate row and column indicators. Moreover, the screen for the TRS-80 has 16 rows and 64 columns which is not the same as the 24 rows and 52 columns for the Osborne. How to reconcile the two? More simply demonstrated than explained; Figure 1 tells how.

```
.90 PRINT CHR$(26)
100 '      Conversion of TRS-80 PRINT @ Statement
110 '      to Osborne 1 screen format
120 '
130 'Screen position number in TRS-80 program
140 'should be replaced by "TRS = #", and
150 'then should be followed by a statement
160 'directing the program to GOSUB to this routine.
170 '
180 'If TRS-80 program statement reads:
190 'PRINT @537,"HERE I AM"
200 'Insert these two statements before the PRINT
210 'statement: TRS=537: GOSUB 270
220 'Then insert OSB$ between PRINT and "HERE I AM"
230 '
240 '
250 TRS=537: GOSUB 270: PRINT OSB$ "HERE I AM"
260 END
270 R = INT(((TRS/64) + 1)*1.4)
280 C = INT(52*((TRS/64)-INT(TRS/64)))
290 OSB$ = CHR$(27)+CHR$(61)+CHR$(R+32)+CHR$(C+32)
300 RETURN
```

Figure 1

Here's what you should learn from this program: Line 290 concatenates (links) the codes for cursor positioning and row and column indicators into one string with the variable name OSB\$. Line 270 converts the TRS-80 screen position to a row number for the Osborne screen. Line 280 performs the same function for the column number. TRS is a variable to which is assigned the value of the number following the PRINT @ statement in the program written for the TRS-80.

Positions on the TRS-80 screen are numbered from 0 to 1023. The upper left corner of the screen, row 1, column 1, is 0. Row 1, column 2, is numbered 2. The last column in row 1 is numbered 63. Row 2, column 1, continues the numbering scheme where the previous row left off. This position is 64. The last column in row 2 is numbered 127. The numbers continue across each row



and after 64 columns for each row the numbers wrap around to continue across the next row until the final position in the lower right corner of the screen: Number 1023.

Since each successive multiple of 64 indicates a new row, dividing the PRINT @ number by 64 yields the row number. The addition of 1 is necessary because the counting starts with 0 as the first position. Multiplication by 1.4 is done to scale the number of rows on the Osborne screen proportionally to the number of rows on the TRS-80 screen, i.e. $24/16 = 1.5$. The value 1.4 works better than 1.5, so I used it instead. Similarly, line 280 performs the same function for the columns.

Line 250 shows how the PRINT @ number is passed on to the conversion subroutine. The PRINT @ number in the TRS-80 program should be replaced by a statement assigning the value of the number to the variable TRS. The next statement should direct the program to GOSUB to the conversion routine. The final statement should be the PRINT statement followed by OSB\$ and the string or variable to be displayed on the screen.

The program in Figure 2 can be used to demonstrate where on the Osborne screen a PRINT @ number positions the cursor. Whatever number keyed in between 0 and 1023 is displayed on the screen at the PRINT @ position.

```

90 PRINT CHR$(26)
100 '      Conversion of TRS-80 PRINT @ Statement
110 '          to Osborne I screen format
120 '
130 'This program can be used to input a number
140 'from 0 to 1023 to find the position on the
150 'screen where that number will position the
160 'cursor for the PRINT statement.
170 '
180 INPUT "TRS = "; TRS
190 GOSUB 210: PRINT OSB$ TRS
200 END
210 R = INT(((TRS/64) + 1)*1.4)
220 C = INT(52*((TRS/64)-INT(TRS/64)))
230 OSB$ = CHR$(27)+CHR$(61)+CHR$(R+32)+CHR$(C+32)
240 RETURN

```

Figure 2

Bear in mind that the 52-column Osborne screen will not appear identical to the TRS-80 display. The Osborne screen is greater in height and more narrow in width. The scaling factors are also approximations. Using this method is simple and gives a close enough approximation. If the display needs some cleaning up or adjustment, this can be done by changing the value for TRS slightly or by directly assigning values to R and C.

```

90 PRINT CHR$(26)
100 '      Positioning the Cursor
110 '          by Row and Column
120 '
130 'You can choose the row and column position
140 'you wish the print statement to appear on
150 'the screen by inserting in the program
160 '"R = #' and "C = #", then GOSUB 200.
170 '
180 R=12: C=20: GOSUB 200: PRINT OSB$ "HERE I AM"
190 END
200 OSB$ = CHR$(27)+CHR$(61)+CHR$(R+32)+CHR$(C+32)
210 RETURN

```

Figure 3

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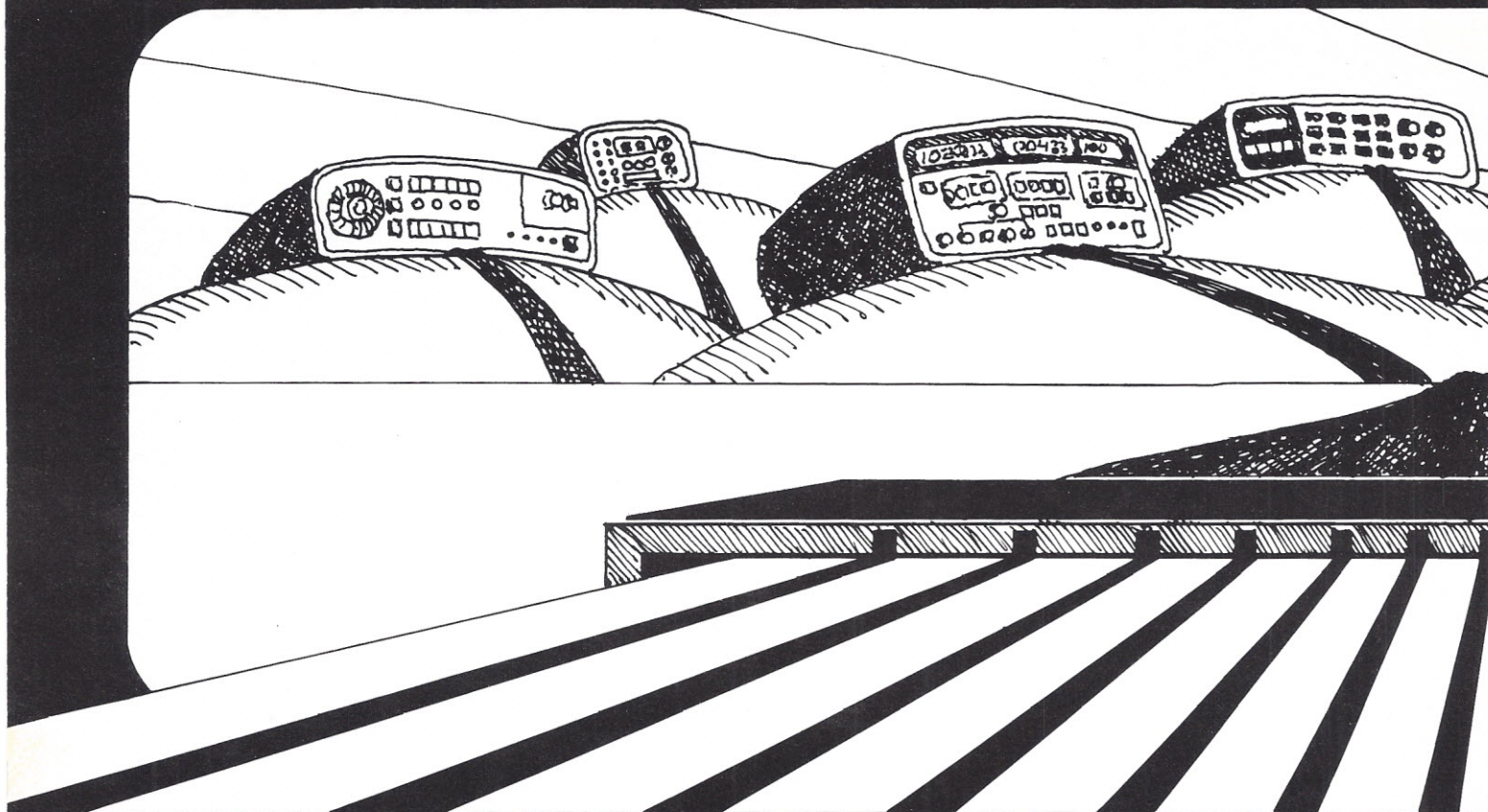
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**Wayne Kogachi
Shahriar Kianersi**

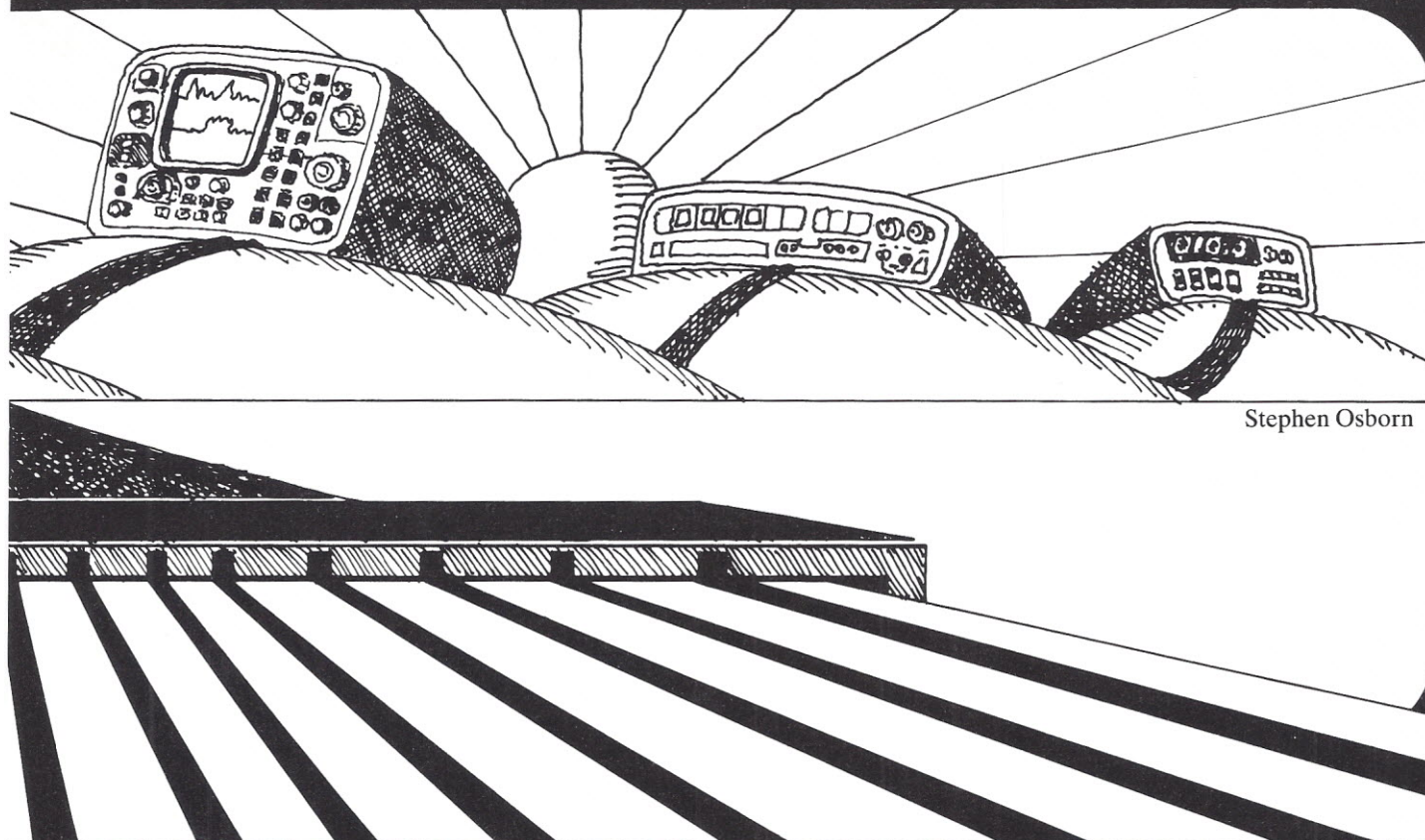
Editor's note—This is an advanced article intended for the engineering and scientific community—or well-versed computer hobbyist. If you're looking for information on intelligent control and interaction with any IEEE interfaced device (e.g. audio analyzer, digital multimeter, quartz thermometer, counter/timer, etc.) this article is for you. Also, read Kelly Smith's joystick article, "Interfacing External Devices," in this issue.

The authors point out that any number of languages can be used to control the IEEE-488, and not just MBASIC as profiled in this article. The principles and concepts are the same.—bb

The dramatic growth of computer technology brought forth the need for certain standards, some of which were in the field of interfaces. Not everybody is an electronics engineer who can build an interface, so standardization takes the worry out of connecting devices to computers.

The IEEE-488 is one of the more widely-used interfaces; it has been published in many languages and is used throughout the world. Over 100 manufacturers use it as the interface for their products, especially in science applications.

The combination of a computer and scientific equipment can be used for such purposes as long-term monitoring, interaction with devices that would otherwise not be possible due to fast response times, monitoring more than one device at a time and handling



Stephen Osborn

massive amounts of data. All this can be accomplished through the IEEE port.

Capabilities of the Osborne IEEE port

Perhaps one of the most valuable features of an IEEE-488 port is its ability to serve more than one device on the data bus. The IEEE-488 port can call up to 15 different devices at one time on the data bus. (From a software point of view, the figure is 29 different devices; however, due to practical hardware limitations only 15 devices are allowed.)

Osborne's IEEE-488 port has eight low-level "drivers," which reside in the ROM and take care of all the IEEE-488 interfacing requirements. These routines are documented in the *User's Guide* in the IEEE-488 implementation chapter. One may invoke any of the routines simply by calling them and passing the proper parameters through preassigned registers. One may also receive messages through assigned registers.

1. Control Out:
By loading the C register with the proper code you can clear the interface (IFC), and/or set or reset the REN line.
2. Status In:
Periodically calling this routine will return a value

Table of Talker and Listener

Address	Character	Decimal value
Talk	Listen	
@	SP	00
A	!	01
B	"	02
C	#	03
D	\$	04
E	%	05
F	&	06
G	'	07
H	(08
I)	09
J	*	10
K	+	11
L	,	12
M	-	13
N	.	14
O	/	15
P	0	16
Q	1	17
R	2	18
S	3	19
T	4	20
U	5	21
V	6	22
W	7	23
X	8	24
Y	9	25
Z	:	26
[;	27
\	<	28
]	=	29
~	>	30

Table 1

in the A register, acknowledging if a device is requesting service.

3. Go To Stand By:

This will allow other devices on the data bus to take control.

4. Take Control:

Placing the right code in the C register will let the controller take over the data bus, either synchronously or asynchronously. The error messages, if any, will be returned through the A register.

5. Output Interface Messages:

The message byte (i.e. the talker or listener address) should be loaded in the C register. Error messages, if any, will return through the A register.

6. Output Device Messages:

The data byte (for instance, the code to a voltmeter to set it up for particular state) should be loaded in the C register. The end-of-message (or message string) should be acknowledged by placing a code in the B register. Error messages, if any, are returned through the A register.

7. Input Device Messages:

The data byte (for instance, the data that is measured by a voltmeter) is returned through the A register. The error message, if any, is returned through the L register.

8. Input Parallel Poll:

The devices that are capable of "parallel poll" will respond by pulling low a preassigned data line so that some kind of code is returned which will correspond to a particular device. If this routine is used, only eight devices can sit on the data bus (one data bit line for each device).

The interface operates at the TTL logic level. After configuring the pin connection for the IEEE standard, one can simply connect the Osborne to any IEEE compatible device. The Osborne's IC chip driver for this interface is a Motorola 6821.

The Osborne 1 is capable of all three device definitions: Talker, Listener and Controller. The way to operate the data bus is to announce the Talker first and then the Listener. Right after this bus management, the Controller will let go of the bus and allow the two devices that now are assigned to the specific duty to take care of the communication (see Table 1 on previous page).

The Controller can announce itself as either the

Talker or Listener. It is recommended that the process of the Controller periodically taking over the bus be done "synchronously" rather than "asynchronously." This subject is also covered in the *User's Guide*.

As mentioned earlier, the routines in the ROM are capable of detecting a number of different errors and acknowledging them through proper registers. Some of these errors are:

- Time Out error. A non-fatal error, which simply allows a 100 microsecond grace period of time for the device to respond. Alternately, you can call the device repetitively to allow for slow devices to respond.
- No Device Present error. Either the port is not hooked up to any device, or all the devices sitting on the data bus are turned off.
- Not taking the data after agreeing to take the data.

Before we go any further, it is worth mentioning that if only a printer/plotter is being used on the port there is no need to go through these routines. Using the SETUP program, make sure that the right protocol is chosen (Printers protocols, IEEE-488 compatible) and that the IEEE address port matches the device number. The latter can be simply accomplished with BIOS 1.4. With BIOS 1.3 and earlier versions there is a patch that is provided in the *Technical Tips* section of this issue. Double density computers (1.4 BIOS) have a menu-driven device address patcher.

MBASIC IEEE Routine

The following example is a routine written in MBASIC that communicates with a device on the IEEE port. Part of its routine is to poke a small assembly language routine high in the RAM. In fact, if you have a BIOS 1.3 or earlier version, you should move the CP/M down 1K.

The way these two programs interact with each other is as follows: The MBASIC routine decides which one of the IEEE drivers it wants and what parameter should be passed on through which register. It then puts all that information in locations that are commonly shared by the two routines, so every time that you call the assembly language routine, the control is relinquished to the IEEE drivers. After performing its duty, control is returned back to the MBASIC routine with returned parameters in proper variables.

The "Control Codes" should be in capital letters. Some manufacturers enforce that; otherwise an error message will be returned. One last point: the Osborne 1 address port is zero, so no other device with that address port can sit on the data bus.

Wayne Kogachi is a software engineer with Osborne Computer Corporation. Shahriar Kianersi, also with OCC, is a system support specialist.

IEEE-488 Interface Program

```

100 '
110 '
120 '
130 ' FOR DEMO WITH AN IEEE-488 COMPATIBLE DEVICE
140 '
500 '/* BEGIN MAIN */
510 '
520 GOSUB 3000 'INITIALIZE VARIABLES
530 GOSUB 4000 'POKE ASSEMBLY LANGUAGE ROUTINE
534 '
535 GOSUB 2001 'ASSIGN TALKER LISTENER
536 '
537 ' THE STRING "OUTSTRS" CAN CONTAIN THE MESSAGE (OR
538 ' MESSAGE STRING) WHICH WILL BE OUTPUT THROUGH "OUTPUT
539 ' DATA MESSAGE" ON TO THE DATA BUS.
540 '
544 OUTSTRS=""
545 GOSUB 5010 'OUTPUT THE OUTSTRS
546 FOR II=1 TO 10
547 QQ=0
548 GOSUB 2022 'ASSIGN TALKER LISTENER
549 FOR J=1 TO 5
550 GOSUB 5500 'PICK UP THE INCOMING DATA THROUGH "IDM"
551 QQ=VAL(INPUTSTR$)+QQ 'ADD UP 5 SAMPLE FOR AVERAGING
552 NEXT J
553 '
554 QQ=QQ/5 :PRINT"INPUT=" ;QQ
556 '
558 GOSUB 2001 'ASSIGN TALKER LISTENER
559 OUTSTRS=""
562 GOSUB 5010 'OUTPUT THE REQUESTED STATE
564 NEXT II
567 '
598 END '/* OF THE MAIN PROGRAM */
599 '
600 '
1090 '
2000 '/* MAKING THE DEVICE LISTENER */
2001 ' SOME DEVICES REQUIRE SETTING "REN" TRUE BEFORE MAKING THEM
2002 ' THE LISTENER.
2003 POKE CREG%,6:CALL IEEE$(C0%) 'SET "REN" TRUE
2004 POKE CREG%,ASC("2"):CALL IEEE$(OIM%) 'MAKE UNIVERSAL UNLISTEN
2005 POKE CREG%,ASC("2"):CALL IEEE$(OIM%) 'TALKER ADDR (OSBORNE ADDR=00)
2006 POKE CREG%,ASC("<"):CALL IEEE$(OIM%) 'LISTENER ADDR (DEVICE ADDR=28)
2007 RETURN
2008 '
2009 '
2010 '/* END OF MAKING THE DEVICE LISTENER */
2011 '
2020 '/* MAKING THE THE DEVICE TALKER */
2021 '
2022 POKE CREG%,ASC("2"):CALL IEEE$(OIM%) 'MAKE UNIVERSAL UNLISTEN
2023 POKE CREG%,ASC("<"):CALL IEEE$(OIM%) 'TALKER ADDR (DEVICE ADDR=28)
2024 POKE CREG%,ASC("<"):CALL IEEE$(OIM%) 'LISTENER ADDR (O-1 ADDR=00)
2025 RETURN
2026 '
2027 '/* END OF MAKING THE DEVICE TALKER */
2028 '
3000 '/* PROCEDURE INITIALIZATION ROUTINE */
3010 '
3020 ' INITIALIZE ALL CONSTANTS USED IN THIS PROGRAM
3030 '
3035 '
3038 '
3040 BEGINADR% = &HE960 'START OF ADDR TO POKE ASSEM LANG ROUTINE
3050 IEEE% = BEGINADR% 'ADDRESS FOR IEEE CALL
3060 NUMBYTES% = 48 'NUMBER OF BYTES IN ASSEM LANG ROUTINE
3062 EOIS% = 1 'USED FOR END OF MESSAGE
3070 '
3080 C0% = 0 'CONTROL OUT
3090 S1% = 1 'STATUS IN
3100 GTS% = 2 'GO TO STANDBY
3110 TC% = 3 'TAKE CONTROL
3120 OIM% = 4 'OUTPUT INTERFACE MESSAGE
3130 ODM% = 5 'OUTPUT DEVICE MESSAGE
3140 IDM% = 6 'INPUT DEVICE MESSAGE
3150 PP% = 7 'PARALLEL POLL
3160 '
3170 INPUTSTR$=STRING$(255," ")
3171 '
3172 RETURN
3180 '
3190 '/* END INITIALIZATION */
3500 '
3600 '
3700 '
4000 '/* PROCEDURE TO POKE ASSEM LANGUAGE ROUTINE INTO HIGH MEMORY */
4010 '
4020 ' THIS PROCEDURE POKES THE DATA INTO HIGH RAM BEGINNING AT
4030 ' LOCATION BEGINADR%
4040 '
4050 FOR I%=0 TO NUMBYTES% 'LOOP FOR POKING DATA
4060 READ A% : HIGHADR%=BEGINADR%+I%
4080 POKE HIGHADR%,A%
4100 IF I%=44 THEN AREG%=HIGHADR%
4110 IF I%=45 THEN BREG%=HIGHADR%
4120 IF I%=46 THEN CREG%=HIGHADR%
4130 IF I%=47 THEN HREG%=HIGHADR%
4140 IF I%=48 THEN LREG%=HIGHADR%
4150 NEXT I%
4160 RETURN
4170 '
4180 '/* END POKE ASSEMBLY LANGUAGE */
4190 '
4200 '
5000 '/* PROCEDURE OUTPUT OUTSTR$ */
5001 '
5002 ' ENTRY - OUTSTR$ ASSIGNED TO OUTPUT STRING
5003 ' MSGTYP% = OIM% OR ODM%
5004 '
5005 '
5010 L%=LEN(OUTSTR$) : IF L%=0 THEN RETURN
5012 I%=0
5030 WHILE I%<L%
5040 POKE CREG%,ASC(RIGHT$(OUTSTR$,L%-I%))
5041 IF I%=L% THEN BREG%,EOIS% ELSE POKE BREG%,0
5060 REPEAT
5070 CALL IEEE$(ODM%)
5080 IF PEEK(AREG%)>0 THEN 5060
5085 'PRINT "L=";L%:" I=";I%:" CREG=";HEX$(ASC(RIGHT$(OUTSTR$,L%-I%)))
5090 I%=I%+1

```

```

5100 WEND
5110 RETURN
5215 '/* END OUTPUT STRING */
5220 '
5230 '
5500 '/* PROCEDURE TO INPUT FROM IEEE-488 */
5510 '
5520 ' INPUT DATA INTO INPUTSTR$ UNTIL LAST DATA READ
5530 '
5540 INPUTSTR$=""
5550 'REPEAT
5560 'REPEAT
5570 CALL IEEE$(IDM%)
5580 IF PEEK(LREG%)>1 THEN 5560
5585 IF PEEK(AREG%)=13 THEN 5560 ELSE IF PEEK(AREG%)=10 THEN RETURN
5590 INPUTSTR$=INPUTSTR$+CHR$(PEEK(AREG%))
5610 IF PEEK(LREG%)<>EOIS% THEN 5550
5620 RETURN
5690 '/* END INPUT IEEE-488 */
6000 '
6500 '
7000 '
7500 '
30000 '/* ASSEMBLY LANGUAGE INTERFACE AND REGISTER BUFFER AREA */
30010 '
30020 ' THIS IS DATA FOR AN ASSEMBLY LANGUAGE ROUTINE THAT IS POKED
30030 ' INTO HIGH MEMORY ABOVE CP/M. THIS ROUTINE IS CALLED BY BASIC
30040 ' BY <LINE#> CALL IEEE$ (<IEEE FUNCTION#>)
30050 ' BREG% AND CREG% ARE INPUT BUFFERS FOR B AND C 280 REGISTERS
30060 ' AREG%, HREG%, AND LREG% ARE OUTPUT BUFFERS FOR A,H,L REGISTERS.
30070 '
30080 DATA &H46,&H2A,&H01,&H00,&H2E,&H3F,&H78,&HA7,&HCA,&H74,&HE9,&H16,&H00
30090 DATA &H1E,&H03,&H19,&H05,&HC2,&H6F,&HE9,&H3A,&H8E,&HE9,&H4F,&H3A,&H8D
30100 DATA &HE9,&H47,&HCD,&H8B,&HE9,&H32,&H8C,&HE9,&H7C,&H32,&H8F,&HE9,&H7D
30110 DATA &H32,&H90,&HE9,&HC9,&HE9,&H00,&H00,&H00,&H00,&H00
30120 '
30130 '/* END ASSEMBLY LANGUAGE DATA */
30140 '

```

Lines 30000-30140 contain the assembly language interface routine and buffer area in the form of MBASIC data statements. The source code for this routine is listed below:

```

;PATCH TO MBASIC TO CALL THE IEEE ROUTINES IN BIOS
;ENTRY
; HL -> NUM CORRESPONDING TO JMP VECTOR FROM BEGINNING OF IEEE BIOS
; CALLS
; EXAMPLE: CONTROL OUT = 0
; STATUS IN = 1
;
; CREG, BREG ARE BYTE LOCATIONS WHICH ARE POKED WITH INPUT VALUES
; BEFORE A CALL TO THIS ROUTINE.
; EXAMPLE FOR MBASIC CALL
;
; ...
; IEEE%= 'ADDR OF ASSEM LANG ROUTINE
; CONTROLOUT%=0 'IEEE CALL
;
; ...
; AREG%= 'STORAGE BYTE FOR A REGISTER
; BREG%=
; CREG%=
;
; ...
; POKE CREG,1 'INTERFACE CLEAR
; CALL IEEE(CONTROLOUT%) 'CALL TO IEEE ROUTINE
; ...
;EXIT
; AREG, HREG, LREG ARE BYTE LOCATION FILLED WITH A, HL
; REGISTER VALUES UPON RETURN TO MBASIC

FREESPACE: EQU 0E960H ;BEGINNING OF 272 BYTES OF UNUSED SPACE

ORG FREESPACE ;BEGINNING OF FREE SPACE OF 01 1.4 BIOS

MOV B,M ;FUNCTION# TO B REG
LHLD 1 ;GET BIOS BEGINNING ADDRESS
MVI L,3FH ;HL->CONTROL OUT BIOS CALL

MOV A,B ;CHECK IF HL POINTS TO CORRECT LOCATION
ANA A
JZ NEXT

MVI D,0 ;BYTES OF CALL ADDRESS
MVI E,3

LOOP: DAD D ;NEXT IEEE CALL ADDRESS
DCR B
JNZ LOOP

NEXT: ;BIOS IEEE ADDRESS IN HL
LDA CREG ;LOAD REGISTERS FOR INPUT
MOV C,A
LDA BREG
MOV B,A

CALL JMPHL ;CALL IEEE ROUTINE
STA AREG ;SAVE RETURN REGISTERS
MOV A,H
STA HREG
MOV A,L
STA LREG
RET

JMPHL: PCHL ;JUMP TO LOCATION IN HL

;REGISTER BUFFERS

AREG: DB 0 ;OUTPUT
BREG: DB 0 ;INPUT
CREG: DB 0 ;INPUT
HREG: DB 0 ;OUTPUT
LREG: DB 0 ;OUTPUT

```


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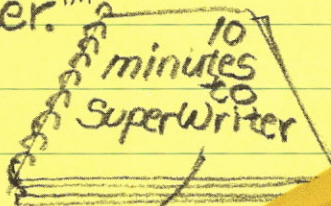
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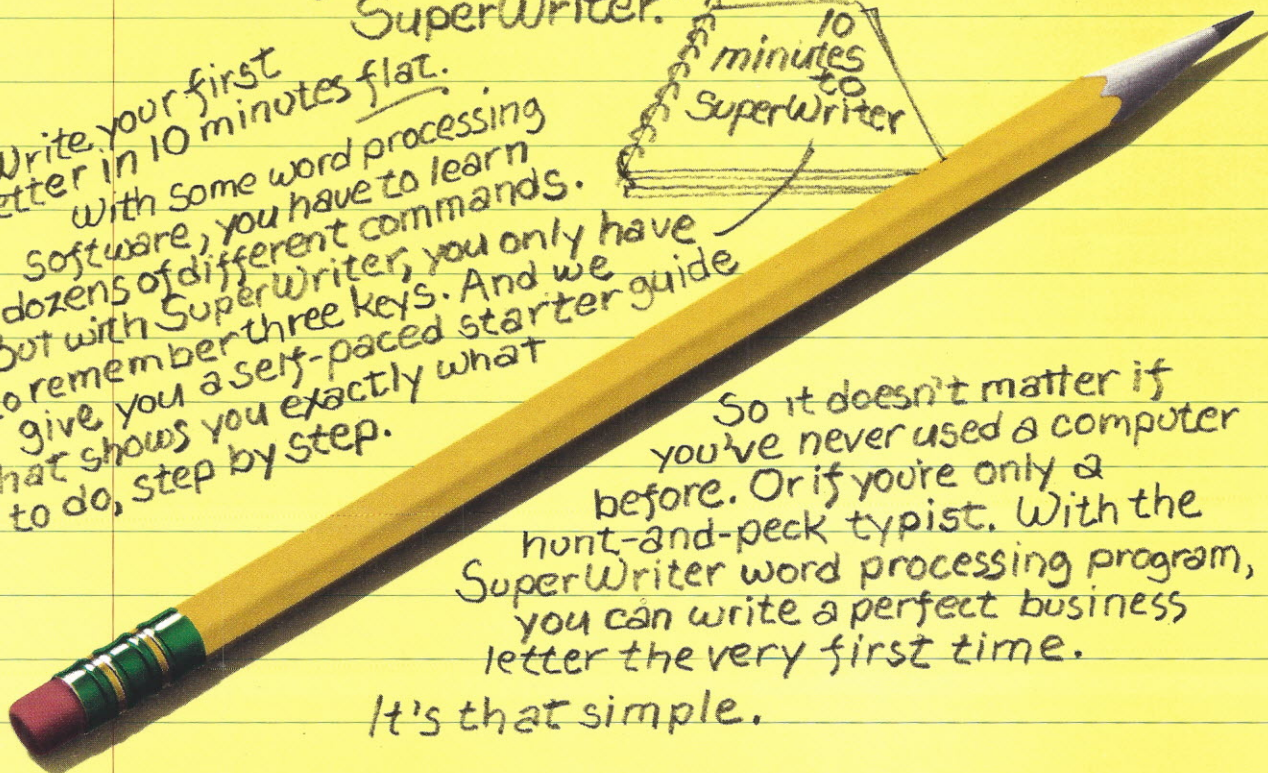
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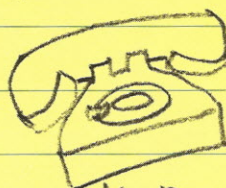
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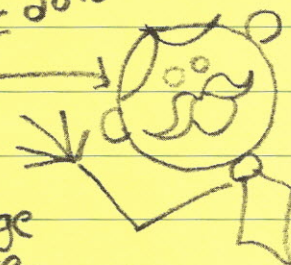
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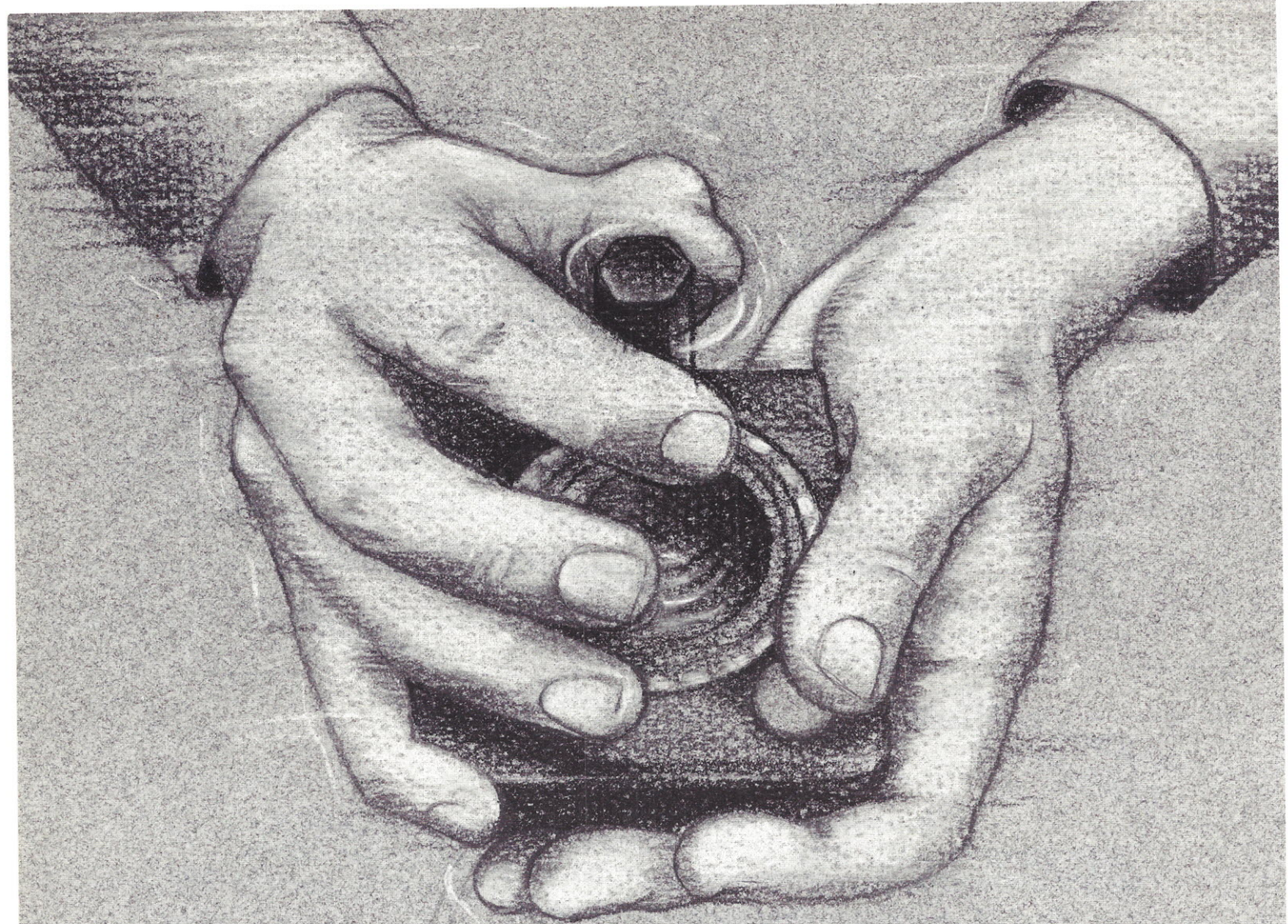
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INTERFACING EXTERNAL DEVICES

*add a game joystick to the
Osborne 1*

Kelly Smith

Editor's note—The subject of external devices talking to and interacting with a personal computer is one of great interest. Today, many applications exist for scientific instruments to work side by side with a computer. For example, in the medical profession, a microcomputer can be used to monitor a patient's vital signs and take appropriate steps when the measurements appear abnormal. In the engineering field, computers routinely monitor and control temperature, light intensity, valves, and electrical current flow, to name a few.

A game joystick is not a scientific instrument, but it does represent an external device that can produce certain responses on a host computer. It's also a product that is inexpensive, sold just about everywhere, and simple to connect and operate. Keep in mind that the theories and principles behind interfacing a device as simple as a joystick can be carried over to any number of applications. In that regard, Kelly Smith's article provides an excellent foundation towards the understanding of the Osborne 1 as a tool that can interact with its environment. In this first of two parts, Kelly shows you how to:

- *Connect and wire an Atari joystick*
- *Create an "Etch-a-Sketch" assembly program that tests the joystick*
- *Write a program that can be used within any MBASIC application requiring a joystick interface*

In next month's Portable Companion, we'll publish Kelly's educational and informative SPACEWAR program, which utilizes the joystick.—bb

Osborne 1 IEEE-488 to Joystick, Interface Adaptor Cable

Time now to gain a little hardware experience. The parts required for the interface adaptor cable can be purchased at an electronic supply house or your local Radio Shack retailer. You will need:

- one DB-9 Male connector (solder type)
 - one 26 pin (13 pin dual row) card edge/flat ribbon connector that mates with the IEEE-488 connector on your Osborne 1
 - about 7 inches of 12 conductor flat ribbon cable (14 conductor is standard, just strip off 2 conductors to make 12) is also needed
 - an Atari game joystick (about \$15.00)
- (See the note at the end of this article for information on obtaining a ready-made game diskette, cable and joystick.)*

The external IEEE-488 connector (labeled "IEEE-488") pin assignments and all relevant data signals appear as shown in Figure 1 when looking at the front of your Osborne 1 computer:



Figure 1

The DB-9 Male connector (it mates with the Atari joystick) pin assignments and data signals appear as shown in Figure 2 (back view, solder pin side). Note that only signals D0 to D4 and sample signal (GND) are used when wiring the joystick interface cable:

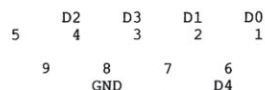


Figure 2

D0 to D7 comprise the eight possible data bits for the joystick data byte. Signal GND is a ground return that may be sampled as a switch closure in any one of five possible switch positions (Up, Down, Right, Left, Fire) of the game joystick. Signal name, connector pin numbers and functions are assigned as shown in Figure 3:

Signal	IEEE-488 Pin #	Joy Stick Pin #	Function
Data 0	1	1	Move Up
Data 1	3	2	Move Down
Data 2	5	4	Move Right
Data 3	7	3	Move Left
Data 4	2	6	Fire Button
Data 5	4	(not used)	(spare)
Data 6	6	(not used)	(spare)
Data 7	8	(not used)	(spare)
Ground	12	8	Sample Signal

Figure 3

If assembled correctly, the flat ribbon cable should exit UP from the IEEE-488 connector, and then loop down (for strain relief) to go under the case of the Osborne 1 (if you rest its edge on the keyboard case for better screen visibility). The cable is then neatly out of the way of the keyboard. Also, note that other game joysticks can work, and in fact some offer as many as eight different switch closures. If you feel so inclined, experiment. I chose just one of the easy possibilities, because it was convenient to modify SPACEWAR (my game appearing in next month's issue), that I had previously written to use the Osborne 1 numeric keypad for position control.

Keep in mind that this does not even have to be a game joystick. Any switch closure to the ground pin can be sampled from a variety of sources—magnetic switches, mercury 'tilt' switches, bi-metallic temperature switches, etc., etc. (I am hinting that a home control/security system would be VERY EASY to do ... consider the possibilities). Just one word of caution: these switches must have full ISOLATION from any source of external electrical power.

DO NOT (for example) hook your Osborne 1 up to your front door bell/buzzer switch. It is guaranteed "Zorch-City" as you fry the electronics in your \$1,795 Osborne the first time someone rings the bell. "Zorch" is one computer game that will cost you more than a quarter to play.

A Simple "Etch-a-Sketch" Checkout Program

Now, we need to create a simple program that checks all possible switch combinations on our newly-made interface adaptor cable by graphically displaying the position of a "pointer" on the screen display of the Osborne. It's easy to make an electronic "Etch-a-Sketch" using the entire 4096 character positions of the display. Edit the following assembly language program with WordStar (as a Non-document), assemble and load it (refer to your *User's Reference Guide* for the discussions of ASM and LOAD).

Now, connect your interface adaptor cable to the IEEE-488 connector on your Osborne 1 front panel, boot your system with a diskette that has been SETUP with Auto-Scroll set to OFF, and locate the pointer that is in the middle of the display screen. Use the CTRL (Control) and Left Arrow key to scroll the screen display until you locate the pointer. Now the fun begins!

If your interface adaptor cable is wired properly, you should be able to write all over the screen in any direction. Notice that any point that is crossed-over suddenly flips to a brighter (or dimmer) display position. Swirling the joystick 360 degrees will produce some very interesting patterns. Press the button on the joystick at any time to entirely clear the display screen.

The code at label "begin" initially set the register pair H and L to a value that "points" to the center of the Osborne 1 screen memory. This pointer [HL] is then saved (push h) on the push-down stack to preserve its content from the certain destruction of the use of [HL] in the routines "delay" and subsequent "call 0e154h" (the IEEE-488 input parallel poll routine).

The call to a delay subroutine is required only if you want to draw things on the screen with the speed of normal human response time (drawing circles, angles, etc.). Remove the call to the delay subroutine and the response to any joystick movement is instantaneous — filling the screen with patterns in a flash. The actual "workhorse" that reads the joystick is all taken care of for us in the IEEE-488 input parallel poll routine. A call to that address simply returns the bit pattern (in the [A] register) corresponding to the mechanical switch closures within the joystick.

The pointer [HL] is recovered from the stack (pop h), and the joystick data in [A] is then compared to see which (if any) switch position(s) have been closed. Also, a corresponding offset value is pre-loaded into registers [DE] in anticipation that the value will be added to [HL] from [DE] (in the "wrt\$cr" subroutine that positions the pointer in the screen memory display). The main program loops through all eight possible switch closure positions (refer to Figure 4), checking for the next direction to move the pointer by adding an offset value to the current position in screen memory ... whew!

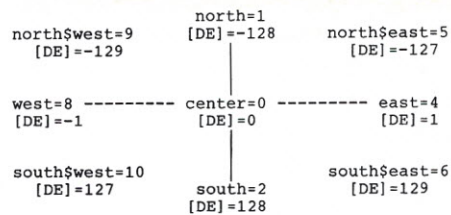


Figure 4

Electronic Etch-a-Sketch

```

org      100h      ; start of CP/M transient program area
;
begin:    lxi      h,0f5bfh; center of 128 X 32 osborne 1 screen
start:    push     h      ; save pointer to video screen position
          call     delay   ; if no delay, this fills the screen FAST
          call     0e154h  ; 1.4 bios call to IEEE-488 input parallel poll
;
; note--call 0e554h for 1.3 bios (single density) Osbornes.
          pop      h      ; get pointer to video screen position
;
center:   ; stay where you are...
          ;
          cpi      0      ; if zero, stick is center position
          lxi      d,0
          jz       wrt$cr
;
north:    ; up one line
          ;
          cpi      1      ; "...to Alaska"
          lxi      d,-128
          jz       wrt$cr
;
south:    ; down one line
          ;
          cpi      2      ; "...to Tijuana"
          lxi      d,128
          jz       wrt$cr
;
east:     ; over one character position
          ;
          cpi      4      ; "...to Jersey"
          lxi      d,1
          jz       wrt$cr
;
north$east: ; back one line, plus one character position
          ;
          cpi      5      ; a nor'easters a'blowin mate...
          lxi      d,-127
          jz       wrt$cr
;
south$east: ; over one line, plus one character position
          ;
          cpi      6      ; off to EPCOT Center...
          lxi      d,129
          jz       wrt$cr
;
west:     ; back one character position
          ;
          cpi      8      ; "go west young joy stick"
          lxi      d,-1
          jz       wrt$cr
;
north$west: ; back one line, minus one character position
          ;
          cpi      9      ; Mounties?
          lxi      d,-129
          jz       wrt$cr
;
south$west: ; over one line, minus one character position
          ;
          cpi      0ah
          lxi      d,127
          jz       wrt$cr
;
          ;
          cpi      10h    ; "on a clear disk, you can seek forever"
          cz         clear
          ;
          jmp      start  ; loop back and sample joy stick again
;
clear:    mvi      e,'Z'-40h ; somehow this all becomes much
          mvi      c,2      ; clearer after a 6-pack of 'Oly'
          push     h
          call     5
          pop      h
          ret
          ; as if by magic, the screen is cleared
;
wrt$cr:   ; write the boob tube...
          ;
          dad      d      ; add position offset to [HL]
          mov      a,h
          cpi      0f0h    ; trying to crash below screen memory?
          jc       begin   ; if so, just go back screen center
          mov      a,m      ; been here before?
          cpi      07fh
          jnz      block    ; if not, drop a block pattern on the screen
          mvi      m,'V'-40h ; flip this position
          jmp      start    ; loop back and sample joy stick again
block:    mvi      m,07fh   ; make a block pattern
          jmp      start    ; loop back and sample joy stick again
delay:    lxi      h,800h   ; delay awhile, to keep from moving to fast
loop:     dcx      h
          mov      ora
          jnz      loop
          ret
;
end

```


Where do these values come from? Well, if we examine the original layout for the assignment of IEEE-488 data signals D0 to D7 (and we throw in a little binary to decimal conversion), we find that each data bit position has a corresponding decimal value, as shown in Figure 5.

Data Bit #:	D7	D6	D5	D4	D3	D2	D1	D0
Decimal Value:	128	64	32	16	8	4	2	1

Figure 5

The "real" binary ones-and-zeros bit patterns that come from the IEEE-488 interface are then translated directly from bit number positions to decimal value, and finally, to direction as shown in Figure 6.

bits #'s 76543210	direction	decimal value	screen offset
00000000	center	0	0
00000001	north	1	-128
00000010	south	2	+128
00000100	east	4	+1
00000101	north east	5	-127
00000110	south east	6	+129
00001000	west	8	-1
00001001	north west	9	-129
00001010	south west	10	+127
00010000	fire button	16	(clear screen)

Figure 6

Notice that north east, south east, north west, and south west are the sum of the binary values (actually two simultaneous switch closures)—combinations such as 3 and 7 are not mechanically possible within the joystick. The only exception to this is bit position 4 (decimal value 16) that I chose to use as the "Fire Button" (more on that in Part Two). As programmed, you MUST return to center position on the joystick to detect the closure of the 'Fire Button' ONLY. Can you figure out how to fix this? If you have a joystick with three more switches, they could just as well be assigned to bit positions 5, 6, and 7 and "sampled-in-software" accordingly.

High Level to Low Level IEEE-488 Interfacing

All of the IEEE-488 interfacing was done very simply for us with just a "call" to a predefined high level subroutine built-in to your Osborne 1 computer. There are times, however, when you must access certain portions of a computer at the very basic or lowest level of the computer—now we get into the very soul of the machine.

The IEEE-488 Bus implementation is really just a parallel data port controller that can be used for a variety of interfacing possibilities that require byte-wide (8 bits at a time) data. This controller is known as a 6821 PIA (Peripheral Interface Adaptor), and may be programmed in a variety of different input/output control modes. We are going to program it at the low level in assembly language for use in the joystick control game called SPACEWAR to be introduced next time around.

First the low level programming: Edit the assembly language code shown below with WordStar (yes, Non-document), as a file called JOYSTIK.ASM—assemble it, but DO NOT load it—we need to modify the .HEX file that is generated from the assembly, in the various steps that follow on the next page.

Joystik. ASM

```
; routine to read an Atari joystick via the 6821 PIA/Parallel port
;
porta0 equ 2900h ; 6821 pia port-a data/direction register
porta1 equ 2901h ; 6821 pia port-a control register
portb2 equ 2902h ; 6821 pia port-b data/direction register
portb3 equ 2903h ; 6821 pia port-b control register
flagpos equ 0ef08h ; ram/rom flag position address: 0=rom, 1=ram
;
true equ -1 ; define true
false equ not true; define false
;
; *** only one of the following 'versions' may be set true for assembly ***
;
; Note: if in doubt, press reset and look at the monitor version number
;
ver2 equ false ; version 1.2 system
ver3 equ false ; version 1.3 system
ver4 equ true ; version 1.4 system
;
if ver2
org 0ee80h
endif
if ver3
org 0ed80h
endif
if ver4
org 0ea80h
endif
;
sdata db 0 ; save joystick data here (initially no direction)
;
; subroutine to read joystick data and save it in previous location
;
rstick: di ; quiet please
out 0 ; rom on/ram off
xra a
sta flagpos ; inform the system that rom is on
lda porta0 ; read the IEEE-488/Parallel port
mov b,a ; save data in register B temporarily
out 1 ; ram on/rom off
mvi a,1 ; inform the system that ram is on
sta flagpos
ei ; you may talk now
mov a,b ; back from exile
ani 01fh ; mask for data bits D0 to D4 only
sta sdata ; save as joystick data to be read later
ret ; return to calling routine (probably in BASIC)
;
; subroutine to initialize 6821 PIA/Parallel port for joystick control
;
istick: di ; quiet please
out 0 ; rom on/ram off
xra a
sta flagpos ; inform the system that rom is on
sta porta1 ; clear control and data ports to float the 6821 PIA
mvi a,4 ; set control for peripheral register-a direction in
sta porta1
xra a
sta portb3 ; float register-b port, for now
cma ; set for direct data out
sta portb2
mvi a,4 ; set control for peripheral register-a direction in
sta portb3
mvi a,0ffh ; set for direct data out
sta portb2
out 1 ; ram on/rom off
mvi a,1 ; inform the system that we are back in ram
sta flagpos
ei ; you may talk now
ret
end
```


1 JOYSTICK.HEX after assembly of JOYSTICK.ASM

After assembly of JOYSTICK.ASM, two files will be created. They are JOYSTICK.PRN, and JOYSTICK.HEX. Enter TYPE JOYSTICK.HEX and your keyboard RETURN key then compare it to the following explanation of what a file of type .HEX is comprised of (if you have a printer. Also enter CTRL-P (press the CTRL key and the P key together) just before the RETURN key to get a listing (entering CTRL-P again, will turn the printer output off):

```

start of record identifier (colon character)
1 byte record byte count (10 Hex/16 Decimal)
2 byte load address (EA80 Hex, for 1st record)
1 byte record type (read)
16 bytes data
1 byte checksum
:10EA800000F3D300AF3208EF3A002947D3013E0127 <-- 1st record
:10EA90003208EF78E61F3280EAC9F3D300AF32C1 <-- 2nd record
:10EAA00008EF3201293200293E04320129AF320332 <-- 3rd record
:10EAB000292F3202293E043203293EFF320229D390 <-- 4th record
:08EAC000013E013208EFFBC91D <-- 5th record
:0000000000 <-- 6th (and final) record and end of file

```

Now, enter TYPE JOYSTICK.PRN and note the address of 'sdata' (joystick data, address EA80, 1.4 bios), 'rstick' (read joystick subroutine, address EA81), 'istick' (initialize joystick subroutine, address EA9B), and 'end' (end of assembly, address EAE8). Write down the label names and associated address values, as we will need to use them later.

3 JOYSTICK.HEX after 2nd pass of WordStar edit

Good, you have isolated the 'load information' from the data field... now locate the end of the data field (one byte before each checksum) and enter RETURN as follows:

```

:10EA8000
00F3D300AF3208EF3A002947D3013E01
2B
:10EA9000
3208EF78E61F3280EAC9F3D300AF32
C9
:10EAA000
08EF3201293200293E04320129AF3203
36
:10EAB000
292F3202293E043203293EFF320229D3
94
:08EAC000
013E013208EFFBC9
21
:0000000000

```

2 JOYSTICK.HEX after 1st pass of WordStar edit

Normally a .COM (command) file would be created from the .HEX file by using the CP/M LOAD command. But in this application, we want just the data portion of the .HEX file to be used in this special application to interface MBASIC to the Osborne 1 computers machine code (i.e., the data!). So first, we will use WordStar to edit the JOYSTICK.HEX file in either document or non-document mode (we will clean-up the file with PIP later, since it will contain special control code left by WordStar that antagonizes MBASIC). Locate the start of the data field in each record, and enter RETURN (<cr> is used here to indicate the carriage return position) as follows:

```

:10EA8000
00F3D300AF3208EF3A002947D3013E012B
:10EA9000
3208EF78E61F3280EAC9F3D300AF32C9
:10EAA000
08EF3201293200293E04320129AF320336
:10EAB000
292F3202293E043203293EFF320229D394
:08EAC000
013E013208EFFBC921
:0000000000

```

4 JOYSTICK.HEX after 3rd pass of WordStar edit

Great. We are almost done, and you are finally finding out what those mysterious .HEX files were all about. Now position the WordStar cursor in front of each colon character and press ^Y. Now carefully go back and delete each one byte checksum. When done, your original .HEX will look like this:

```

00F3D300AF3208EF3A002947D3013E01
3208EF78E61F3280EAC9F3D300AF32
08EF3201293200293E04320129AF3203
292F3202293E043203293EFF320229D3
013E013208EFFBC9

```


5 JOYSTICK.HEX after 4th pass of WordStar edit

Now that we have stripped the file to its bare essentials, we must enter a comma character to isolate each machine code data byte, one from the other, that will be required by MBASIC's READ statement. (Be sure you are in WordStar's INSERT mode (^V toggles insert ON and OFF) Do two character moves to the right (^D), enter a comma, two moves again, etc., etc. When you are done, the final (honest, we really are almost done!) .HEX should appear as follows:

```
00,F3,D3,00,AF,32,08,EF,3A,00,29,47,D3,01,3E,01
32,08,EF,FB,78,E6,1F,32,80,EA,C9,F3,D3,00,AF,32
08,EF,32,00,29,32,01,29,3E,04,32,01,29,AF,32,03
29,2F,32,02,29,3E,04,32,03,29,3E,FF,32,02,29,D3
01,3E,01,32,08,EF,FB,C9
```

Line 8000 defines integer variable K as the data value that will be used by the read statement in Line 8030 to "fetch" the data (your modified .HEX file) in Line 8050 to Line 8090. Line 8010 defines the addresses that you wrote down earlier. It performs the following:

- calls the subroutine to initialize the joystick (ISTK)
- reads the joystick (RSTK)
- calls an address from which we may PEEK at the data value read from the joy stick (DSTK)
- and finally calls a string constant H\$ that defines the permissible range of hexadecimal digits (0 to F hex, or 1 to 15 decimal)

If you're using double density, the addresses are the same as the addresses shown here; if you're using 1.2 or 1.3 BIOS, they will have an offset of either 300 or 400; e.g., for 1.2 bios, EE9B instead of EA9B, EE81 instead of EA81.

Line 8020 is the statement to define the start of a FOR NEXT loop, where A is a counter whose first count is the "org" address (program origin EA80), and a final count of "end" minus one (EAC8-1 = EAC7). This is the block move address counter that will be used in Line 8040.

Line 8030 reads the data sequentially into string D\$ from each DATA statement in Line 8050 to 8090, where the integer variable K is converted byte-by-byte to binary machine code (something the Z80 Central Processor Unit (CPU) in your Osborne 1 can actually execute directly without MBASIC's interpretive aid).

6 Converting JOYSTICK.HEX to JOYSTICK.BAS

Now, enter ^K and D to save JOYSTICK.HEX, then use ^O to rename JOYSTICK.HEX TO JOYSTICK.BAS. With that done, edit JOYSTICK.BAS adding MBASIC line numbers (starting with some high number like 8000), and the statements required to block move the machine code into the area in the Osborne 1 system BIOS that normally is used for diskette data buffer transfers (this last comment was for the 'Techy-Types' only):

```
8000 DEFINT K 'double density (1.4x) code. See note for others.
8010 DSTK=&HEA80:RSTK=&HEA81:ISTK=&HEA9B:H$="0123456789ABCDEF"
8020 FOR A=&HEA80 TO &HEAC7
8030 READ D$:K=(INSTR(H$,LEFT$(D$,1))-1)*16+INSTR(H$,RIGHT$(D$,1))-1
8040 POKE A,K:NEXT:RETURN
8050 DATA 00,F3,D3,00,AF,32,08,EF,3A,00,29,47,D3,01,3E,01
8060 DATA 32,08,EF,FB,78,E6,1F,32,80,EA,C9,F3,D3,00,AF,32
8070 DATA 08,EF,32,01,29,32,00,29,3E,04,32,01,29,AF,32,03
8080 DATA 29,2F,32,02,29,3E,04,32,03,29,3E,FF,32,02,29,D3
8090 DATA 01,3E,01,32,08,EF,FB,C9
Note: &HEA-- => 1.4x monitor rom. (Also EA on line 8060.)
Change to &HED-- and ED on tenth byte on line 8060 => 1.3 mon rom
Change to &HEE-- and EE on tenth byte on line 8060 => 1.2 mon rom
```

Line 8040 is simply a means to POKE into memory, the value in K pointed to by the address counter A. Just remember that A is the incrementing address starting at EE80, and K is the sequential read value of the DATA statements—just picked up from one place and put down (block moved) to another.

When the total FOR NEXT loop is completed (all data block moved), the MBASIC subroutine exits back to a (as yet unspecified) calling routine.

We are done with the basic (literally!) joystick routines, but just with the preliminary stuff. JOYSTICK.BAS may now be used as a library routine that you can use over and over again in various other MBASIC program applications that require a joystick interface. See you next time around with a joystick game for the Osborne 1.

In case the creation of cables and assembly language programs are a little beyond your capabilities or time requirements, you may contact Kelly Smith at P.O. Box 964, Chatsworth, CA 91311 to purchase the SPACE-WAR software (a 200 line program) and joystick hardware at a nominal fee. Indicate your computer's BIOS version (press the RESET button and look at the sign-on message).—bb

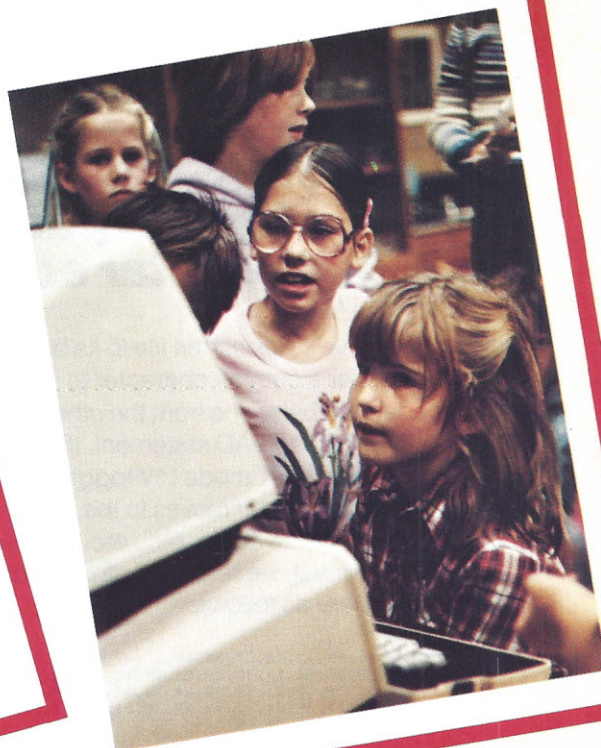
Kelly Smith is with the Wizard of OsZ, a software and accessories company. He was the author of the popular "Monster" program for the Portable Companion's inaugural issue.

ocean

1/26/83

Electronic Computer
One day a computer was
invented. This was no
ordinary computer. One
day it decided that it wanted
to go out and see the world. So
it got on an airplane and went
to all different countries like
France, Italy, Texas and Israel.
Finally she came to Oakland.
She went to a school called
Chabot. There was a bunch
of things crowding around
her. There was a really ugly one,
a pretty one, there were two of
them standing on a chair,
they were girls and they were
giggling. The computer liked
them best.

The End



“...The computer

Kids love computers, and computers seem to love kids as well. They both in many ways are subspecies of the human race, smaller and compacted versions of our minds and our bodies. And yet they are peculiar to themselves—vulnerable, susceptible to change, and whimsical according to their own inner logic.

Precious few of us truly understand either kids or computers. Their so-called whimsical streak—inevitably logical upon closer examination—has always been a bone of contention, a strong basis for misunderstanding for we larger versions of minds and bodies.

But their relationship to each other should come as no surprise. After all, kids do come from a video-saturated culture. We do, too, but television was different when I was small. My videological

upbringing revolved mainly round cartoons and random memorable events, like Kennedy's assassination and John Glenn's rocket ship revolution. We liked entertainments of the “I Love Lucy” variety—absurd, and the more unlikely the better.

Things are decidedly different for our sprouting generation of computer wizards. The advent of microsecond media and whiz-bang technology has merged on the video screen the real and the surreal, the improbable and the infinitely possible. The result can be seen in arcades, at the joysticks, and in classrooms at the terminal keyboards—a sophisticated group of youngsters who have decided to embrace, not resist, what we once saw as a Space Odyssey-style encroachment on our human-ness.

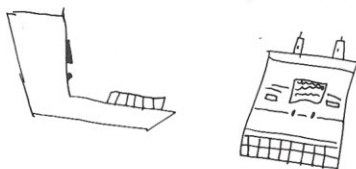
Technophobia is not to be found



HOW I GOT HERE ♥

by Carrie the Computer

I the computer got to the table of P10 because Mr. Osborne sent me down from Heaven to Mr. Siverts. He read the note and then took me to P10 in Chobot School. The kids played with me. One kid said, "Hey, this is a girl. Let's name it Carrie." Yes, let's name it Carrie. That's how I got my name also. They played with me longer and I did not mind.



serud The Live Computer

Jan 28

Hello my name is Jay Osborn. I'm a computer, right now I am in a school. My real owner is Mr. Siverts. I walk so he could get even richer than he already is. His filthy rich. He makes me so his boss work shall work its disgusting. The reason he makes me do his work is because I am smarter than him. He is by far smarter than me. I am not trying to brag either, its just that computers are smarter than humans. Its hard to believe that about humans invented it computer.

liked them best."

Denise Caruso

on the faces or in the letters on these pages. Imagination, however, is.

The Osborne 1 may not come directly to us from heaven, or walk itself onto an airplane (although OCC is no doubt working on it), but in their own way these children have incorporated into their lives a tool that is still, to many of us, somewhat a suspect luxury.

For all our fears about computers taking away our children's ability to think logically, making them lazy and unable to function without machinery to work for them and/or play with them, computers already play an integral part in their lives.

As parents, or computer owners, or just plain old watchdogs of human progress, we owe it to ourselves and to the kids to teach them the logical miracles of computer technology. Not just that

computers work, but how they work as well. This of course means we must learn more too.

It could be argued that we're growing them up before their time. But have you listened lately to a group of 10-year olds? They are light years past my realm of fifth grade knowledge, which got about as far as a couple of racy jokes and some rather vague ideas about dumb stuff like politics and "new math." Our sensibilities are no match for Brooke's Calvin Kleins, and it's still hard for many of us to watch wars on television—or to see computers in the classroom, for that matter.

It must be an incredible world for today's kids—so many opportunities, so many choices are spread out for them on a globe that has literally become as close as a telephone and a computer. ■



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UserGroups

Printing squeezed files

Bruce N. Wheelock

Disk space on microcomputers is usually at a premium (the old adage that data expands to exceed available disk space). To alleviate this problem, many Remote CP/M (RCPM) systems store files in "squeezed" format; this technique is also used by individual owners for archiving. Squeezed files are stored in a coded format that allows a file to be stored in as little as one-quarter its original disk space, depending upon the type of data.

Files are squeezed using a program that is usually called (surprise) SQUEEZE.COM or SQ.COM, originally written by Ward Christensen of MODEM7 fame. Files are unsqueezed using another Ward Christensen program, UNSQUEEZE.COM or some similar name. A third program, TYPESQ.COM, displays squeezed files on the CP/M console device.

Now, sometimes a squeezed format file is copied from an RCPM, or one is in archive, and all that's needed is a hardcopy listing to examine. Or perhaps the unsqueezed version of

the file takes up more space than exists on one disk (especially with single density disk drives). Unfortunately, TYPESQ cannot be directed to the printer, nor does the ^P printer toggle get the printer to echo what is appearing on the screen. There does not seem to be a way to print squeezed files.

Fortunately, however, CP/M comes with some pretty versatile stuff, and so the problem can be solved using two of its programs, STAT and SUBMIT.

In CP/M there are two types of machine devices, called "physical" and "logical" devices. Logical devices are handy identifications used to tell CP/M where to get data, and where to send data. Physical devices are the actual on-machine units. As long as the unit is not incompatible with the operation to be performed, any physical device can be connected to any logical one. This capability will get TYPESQ to send its results to the printer.

In the "old days" of data processing (not all that long ago), all computer operations consisted of putting together a bunch of control cards and instruction parameters along with a program, feeding it into the system, and waiting for it to finish.

The user had no real influence on the process once it got going. This is known as "batch" processing. Batch processing is what SUBMIT is all about. It takes a series of valid CP/M commands (those that can be entered at the A) prompt) and processes them, one at a time, until it has finished the last command. This is what is used to print squeezed files.

First create a command file, using WordStar in non-document mode, called SQPRINT.SUB (the .SUB extension is required). Into this file enter the following (except the notes in [brackets]):

```
STAT CON: = LPT: or STAT CON: = CRT: [*]
TYPESQ B:$1.$2
STAT CON: = TTY:
STAT DEV: <cr> [**]
```

[*NOTE—use LPT: for a parallel printer, or CRT: for a serial printer. LPT]

[**NOTE—<cr> represents a hard carriage return. This is essential for the process to work.]

Here's what happens: Line one tells CP/M that the logical system console (keyboard and screen) is attached to physical device LPT: (the parallel printer port) or CRT: (the serial printer port). This will cause all console output to appear

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on the printer; it also means the computer cannot be keyboard-controlled.

The next line prints a specified file on the B drive. This will be most common, since the squeeze file disk will be in A drive. Two substitution variables are used here to specify file name (\$1) and the three-character extension (\$2). These two data items are provided when the job is run.

The third line in this procedure takes effect when the file has finished printing. It reassigns the physical printer to the logical printer. Then, finally, the last line lists the current logical/physical assignments, to assure that all assignments are back to normal.

Once the file is created, use PIP to put SUBMIT, TYPESQ and SQPRINT.SUB onto the same disk. (I recommend placing them onto the CP/M System disk. The CP/M disk already has SUBMIT on it, and should easily accommodate two new files.) Most people use the CP/M System disk for all the common utility actions, so it's a good place for them. If that won't work, be sure to SYSGEN the disk they do go onto, so it can be used to boot with.

Now it's time to print a squeezed file. Load the SQPRINT disk in drive

A, and the disk with the file to be printed in drive B. Cold boot the system. When the A) prompt appears, make sure the printer is ready, then type the command "SUBMIT SQPRINT STARTREK BQS" (STAR-TREK and BQS would be replaced by the name and extension of the file to be printed). One command will appear on the screen and one on the printer, and then printing will begin. Do not place a period between the file name and the file type. When running SUBMIT, substitute variables can be included in the submit file to be replaced, in sequence, by the terms that follow the .SUB file name. Thus in this case, the first substitute, STARTREK, replaces \$1 and BQS replaces \$2 when SQPRINT is submitted.

So there it is, a simple, easy-to-use technique to facilitate listing squeeze format files. Compute long and prosper.

Bruce Wheelock is a computer programmer for the U.S. Navy in San Diego. He's a three-month veteran Osborne owner.

Health hazards

Michael Miller

Are computers hazardous to your health?

This is not a question most purchasers of personal computers ask their dealers. But enough complaints have come in about computers and video display terminals (VDTs) to prompt a flood of studies about their possible health effects.

These studies have concentrated on radiation leakage and eye and muscle strain, and have generally given computers a qualified clean bill of health.

The more studied of the two problems is radiation. High voltages of electricity are used to drive electrons into phosphor atoms that coat the screen of a video monitor, causing them to light with the dots that form the images on the screen. If extremely high voltages are used, sometimes this radiation can leak in the form of potentially dangerous X-rays, according to John Bailey, a spokesman for the Food and Drug Administration's National Center for Devices and Radiological Health. Responding to numerous questions about radiation, the FDA tested 125 VDTs for

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X-ray radiation. The tests were done under "worst-case" conditions; in other words, the machines were adjusted to produce the most radiation possible and circuits designed to protect against radiation leakage were purposely made to fail.

In this test, all but eight of the 125 VDTs tested emitted less radiation than that allowed by the FDA's performance standard for television sets. The three manufacturers that made the eight units that failed either corrected the problem or took the model off the market.

In other tests, some of the VDTs were also checked for radio frequency, microwave, ultrasound, infrared and ultraviolet radiation. All of the machines emitted far less radiation than the standards for these radiation types.

One potential radiation problem with computers could exist, however, if a pre-1970 television set is used as a video monitor. Concern over excess radiation led to a 1970 FDA standard limiting radiation from television sets. Because of the potential high voltages, FDA recommends against using computer or video games with these old televisions, Bailey said.

Maurice Herbert, an information

specialist with the National Institute of Occupational Safety and Health (NIOSH) said that in a 1980 study of VDTs at two newspapers and an insurance company, radiation was either too small to be detected or at the level of normal background radiation.

But at all three sites, eye and muscle strain was a more apparent problem, Herbert said. At all of the sites, problems existed with what is called ergonomics, the ways workers adjust to the machines. These included such things as screen glare, room lighting problems, improper screen and keyboard heights, and poorly designed tables and chairs.

Following this study NIOSH issued recommendations to help reduce health problems among users of VDTs. As summarized in a FDA report, these include:

- Workers should be able to adjust the height of their keyboard, screen, chair seat and backrest; screen brightness and contrast; leg room; viewing distance; room lighting levels; and chair tension.
- Screen glare should be controlled by using drapes or blinds on windows, hoods and glare shields over

screens, and proper positioning of machines with respect to lighting.

- Workers should take rest breaks of at least 15 minutes every two hours.
- Workers should undergo a complete eye exam before they begin working with VDTs and limited exams periodically.

Reprinted from the March issue of PIP, the newsletter of Chicago's First Osborne Group.

Epson printer case

Jim Parker

It is difficult to locate a case that will allow the Epson MX-80 or MX80F/T printer to match the portability of the Osborne 1. Computer shops usually act as if they never heard of such a thing. A search of luggage stores turned up only small suitcases (usually pink), briefcases (usually too tight a fit) and catalog cases (too hard to pack).

An occasional magazine advertisement pictures something midway between a footlocker and a cardboard box for \$85.

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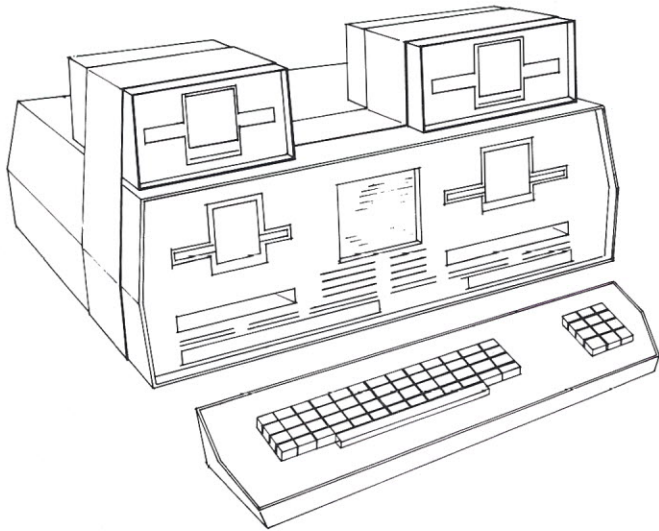
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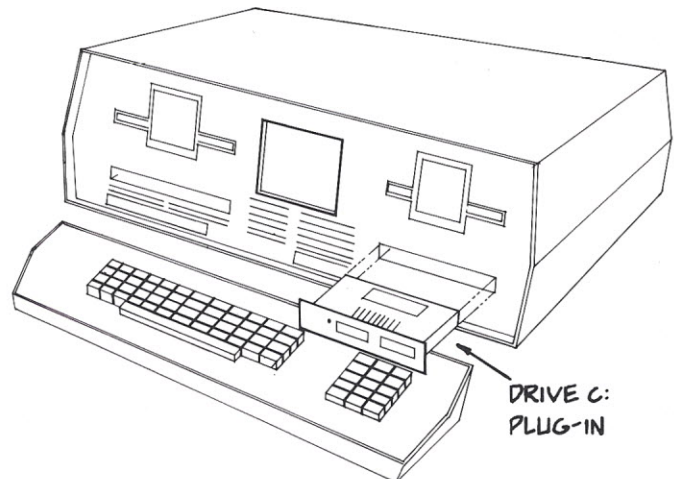
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A small Halliburton camera case fits perfectly and even includes a handy shoulder strap (costs additional). Enough room is left in the aluminum case for cables, a little paper and some foam padding. Check these cases out—although they have a well-deserved reputation for quality, they are not as expensive as you might think, and can serve a variety of uses when not carrying the printer.

Reprinted from the February 83 DOG/BYTES, newsletter of the Denver Osborne Group.

Osborne's START-PAC

Steven Bentley

Osborne's START-PAC consists of three cassette tape recordings and a stand-alone flip chart. Each tape

is dedicated to discussing one of the three major pieces of software which accompany the purchase of every Ozzy—the CP/M operating system, WordStar, and SuperCalc. The flip chart is designed to supplement all three tapes.

My accounting practice produces numerous documents using WordStar every day. We employ local highschoolers as secretarial help which leads to a relatively rapid turnover in personnel and requires frequent training of new people. In as much as WordStar tends to be time consuming to teach to novices, we decided to test the START-PAC system as a training tool.

In a nutshell, START-PAC is effective in training the complete novice in the operation of the Osborne and introducing them to the basics of WordStar and SuperCalc. However, if you, as an individual owner, have

managed to log as little as eight hours on your machine since you purchased it, without the help of START-PAC, it will probably not teach you anything you have not already discovered on your own or from reading the tutorial supplied with your Ozzy.

Each tape begins with a description of how to turn on the computer and boot the disks. After listening to this three times in a row, you wonder about Osborne's perception of its buyers' intelligence level. Then you realize that each tape is designed to be an independent tutorial. I feel the PAC should be redesigned to require sequential listening, and thereby eliminate some of the redundancy. Or else the tapes should be unbundled to allow optional separate purchases. The speech on the tapes themselves tends to be on the slow side, with repetitions and ample time allowed to carry out commands given to the operator/listener. There are even pauses in the text on the tapes where the only sound is that of the disk drives in operation, hopefully in tandem with your own drives. Again, for someone with any experience on the computer, these pauses and delays can be frustrating. It has been noted in testing the tapes on the uninitiated in this office, though, that persons new to using any computer appreciate the extra time to understand what it is that they are doing.

The tapes are designed to be used independently of the flip chart. The chart goes into greater detail describing certain commands than does the tape. This can be confusing if you are attempting to use the chart and the tape together. I feel Osborne should coordinate the tapes and the chart, and include more detail on the tapes. I think this would make the package more effective and result in better retention by users of the instructions given.

At \$49.95 the START-PAC is priced lower than most tutorial tapes on

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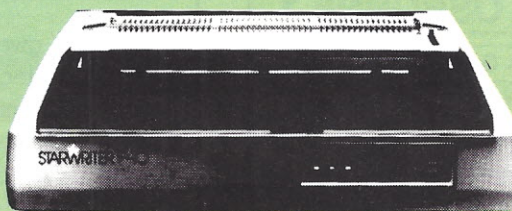


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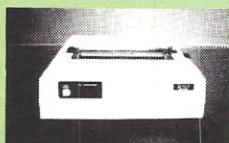
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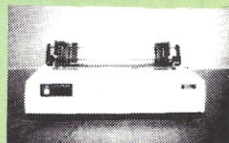
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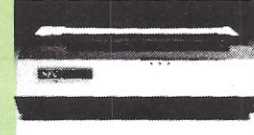
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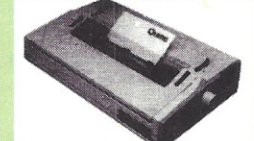
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the market, given that coverage of all three subjects is included. If you have a frequent need to introduce more than a few people to the Osborne and the software it uses, then START-PAC will probably be of some use to you. If you have just acquired your computer, or are about to acquire one, and know nothing about its operation, then I encourage you to get START-PAC to help you get started. But, if you have progressed to the point where you can do simple documents on WordStar, simple spreadsheets on SuperCalc, and know the rudimentary commands of CP/M, I would advise passing on the START-PAC. While START-PAC did not improve my understanding of the Osborne or its software now, this is definitely one piece of software that I wish Adam had bundled into his wonderchild to assist me when I first bought my Ozzy, rather than allowing me to discover it after I stumbled through my initial experiences on the machine.

This article was reprinted from the February 1983 issue of DOG/BYTES, newsletter of the Denver Osborne Group.

Osborne in blue

**Agent Kip White
Lakewood Department
of Public Safety
Lakewood, Colorado**

"DOPE RAIDS IN AREA NET \$1.5 MILLION" read the headlines in the local newspaper. They heralded the end of a year-long police investigation aimed at the largest known drug ring in the state of Colorado.

Cocaine and cash both draw a good audience. Everyone from local reporters to the IRS wanted to know where so many \$20, \$50 and \$100 bills came from. It took four police agents seven hours to count it. Suitcases and suitcases full of

money. The scene was nothing short of frantic.

Behind this scene, however, was something new. Calmly whirring away in the electronics room of the Intelligence Division sat an Osborne 1. Armed with WordStar and three CBASIC programs, it was cataloging over 4,000 events recorded by investigators during the past 12 months: who met whom, when, where and who saw them. Volumes of information, items which taken by themselves meant little, but taken together wove a web of intrigue and conspiracy.

For months, agents had been working around the clock meticulously gathering bits and pieces of information about a dozen members and close friends of a family which controlled the cocaine business in Colorado. One by one the connections—in Colombia, California, Florida and Mexico—the cars, boats and airplanes, and finally the business "fronts" ranging from construction companies to light bulb warehouses, became known. The investigation had become super-saturated with information. Somehow, the information had to be organized and cross-referenced. Fortunately, there was a solution—a computer that could go where the action was, get the facts, sort them out, and remember everything—the Osborne 1.

WordStar was employed to write reports and transcriptions of important interviews obtained in the case. It was also used to write CBASIC programs to analyze investigative leads and handle evidence. The leads were sorted by names of persons involved, dates of occurrence and nature of the lead. Evidence was booked according to type: money, drugs, weapons and all other items. Official court documents were automatically printed when needed.

Modern law enforcement is a battle not of bullets, but of ball point pens. We are finding, however, that the volume of information that surrounds us can be overwhelming un-

UserGroups

less met with the correct tools. This case is a good example of information under control, catalogued and brought to bear against sophisticated, organized criminals. The computer is coming out of the data processing room and into the field and the results are promising. You can buy quite a few Osbornes for \$1.5 million.

Reprinted from the February 1983 DOG/BYTES, newsletter of the Denver Osborne Group.

Killing Radio Shack's line feed

You may have run into a problem with not being able to manually turn off the automatic line feed on your Radio Shack printer. The line feed function must be turned off via software control each time the computer is powered up. The following excerpt from the January 1983 *FOG-HORN* ("More Help For November Letters," by T.C.) may shed some light on the subject.

WordStar can be modified in either of two ways. Either the carriage

return sequence can be redefined or the printer can be reconfigured by WordStar at the start of printing. An easier solution (and one which would allow you to print your other listings properly too) is to create a

short program to reconfigure the printer for you. You may want to name this program AUTOST.COM; it can be executed each time a cold start is performed. A short assembly listing for such a program follows:

BDOS	ORG	100H	
ESC	EQU	0005H	;BDOS vector
PRSTR	EQU	001BH	;escape code
	EQU	g	;print string
			;
BOOT	EQU	0	;warm boot vector
			;function
	LXI	D,MESG	;load message
			;address
	MVI	C,PRSTR	;set print
			;string function
	CALL	BDOS	;print it
			;
	JMP	BOOT	;warm boot
			;
MESG	DB	ESC,15H,'\$'	;TRS enable CR only
	END		

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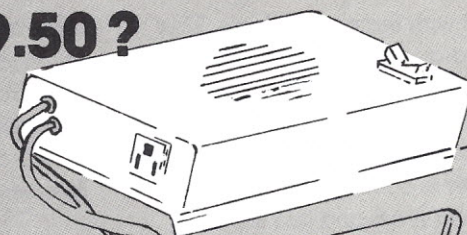
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Inside-Outside Osborne

Dear OCC:

In November, 1981, my husband and I took leaves of absence from our jobs, leased our house, borrowed some money, took our two kids out of school and headed South from Los Angeles in our 38' sailboat, "True Grace."

As I look back on the hectic weeks of preparation for our trip and the many decisions required to find the optimum balance between the available money and the list of necessities, I recall that a computer was on my wish list, (I knew it would never make it) and an air compressor was on my husband Bill's list (it didn't make it either). I actually went to look at an Osborne, but in my heart I knew I was really only window shopping. When the salesman looked at me with a blank stare when I asked about the battery pack and finally mumbled something about it not being available yet, I knew I could even stop wishing.

Fifteen months later after extending our original trip from one year to two (and borrowing even more money) we found ourselves approaching the Panama Canal Area (no longer called Zone since the treaty). For fifteen months we had traveled oceans and primitive villages; we had been out of touch with "progress," CPI, *Byte Magazine*, and other attributes of our first-world nation.

What, I wondered, had happened in the microcomputer industry. When I found a four-month-old edition of *Byte* lying around the Panama Canal Yacht Club, I devoured it. (Uh-huh, my husband thinks I'm crazy too, but he likes me that way.)

In the Panama Canal Area they had laundromats and supermar-

kets! This was the crossroads of commerce. Since we would qualify for duty free goods as we went through, perhaps we could find a good Japanese computer at a great price. Well, a little research indicated that the Japanese really had not yet entered the marketplace. In my search I was drawn to the brand-new Computerland in Panama City. Guess what I saw when I first walked in? The people were very nice and three days later we bought what I suspect was the first Osborne sold in this new store. (If salesman and secretary congratulating and hugging each other behind a partition as I signed the Visa slip is any indication. On second thought, maybe that sort of thing goes on all the time.)

Did we get a bargain? Unfortunately not in the traditional sense, but, in my opinion, yes because I got what I really wanted. We paid exactly \$1995. We did not pay Panamanian duty (\$400) or California sales tax. (The Micronta inverter that Computerland helped us to purchase would invert our 12 volt DC to 110 AC and cost \$155.)

What, you might wonder, do I want with a \$2000 computer in the isolated environment of a small down-to-basics sailboat? I thought I had the answer all worked out before the actual purchase. We have two sons on board, ages 12 and 16. I feel I can offer them a head start as they approach the adult world if they are computer literate. Out here we have time, but when we get back to our old suburban lifestyle this fall there will be girls and school and sports and girls and homework and the beach and girls.

But as soon as we got it on board I realized that was perhaps 40 to 50 percent of the reason. Mom really


wanted to get her fingers wet. The responsibility of managing the educational computing facilities at Pepperdine University had required 120% of my time, leaving very little time for fooling around on microcomputers.

How is it working? Being so far away from any kind of support is difficult in one sense, but certainly makes me hunt for the answers. One of the small initial problems is the Spanish language keyboard which was the only double density machine available immediately duty-free. Surely Osborne did not expect the Spanish speaking world to give up exponentiation, yet there is no carat on my keyboard. My first reaction is to program a function key, but I haven't thoroughly researched the problem in the manual or investigated the situation yet. The MBASIC TRON command prints a funny little squiggle in place of the right bracket. It sounds like perhaps I need one of the software packages advertised in your third edition of the *Portable Companion* for keyboard modification. But then if he can do it with software I hope I can too. (Although I may need more documentation.)

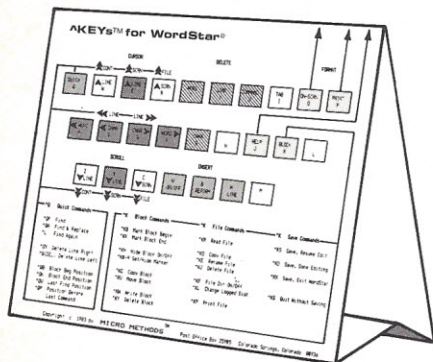
I was very relieved to find that my Osborne seems to run perfectly on the inverter, (I was concerned about the square wave versus sine wave) and does not draw too much power—especially if we keep the disk drive usage down. (Invaders is OK ... Adventure is rationed.)

I realize that the Osborne is marketed as a business computer. I promise not to tell anyone how much fun we're having.

Penny Gerritsen

On leave Pepperdine University
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The Processed Word

From screen to script

Barbara Elman

"Television demands a lot of material in a short time," laments comedy writer Gene Perret. "Sometimes this doesn't afford you the luxury of polishing each little gem to the lustre that you would prefer. The producers knock on your office door and ask 'Is it done?' not 'Is it funny?'"

While computers have helped novelists and journalists polish their "little gems," they have inadvertently complicated screenwriters' lives. Consider that it takes one hour and fifty-nine minutes to watch "Citizen Kane," but it took over 2,000 hours to write and polish the script on a manual typewriter. A word processor could cut that 2,000 hours down to 500.

But an estimate of computer owners among the 6,200 Writers Guild of America members tallies to only 15 percent. Osbornes are high on the popularity list, offering affordability, portability, and reliability. The programmable number keys (for storing alternate margin command strings and some main characters' names) plus WordStar's habit of displaying action and dialogue on-screen just as they will look on the page ("what you see

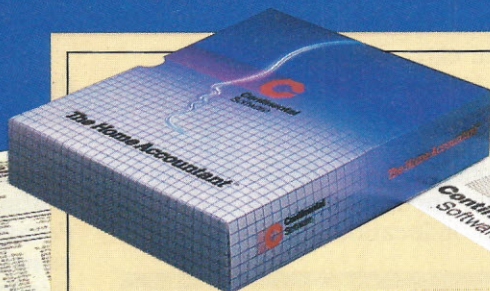
is what you get") lets the writer devote his attention more to the art of composing than the task of computing.

The average TV episode or feature film script undergoes more nitpicking, name changing, rearranging and polishing than most novels, articles or computer manuals, however. A multitude of editorial fingers poke at it throughout its lifetime. First is the writer himself, transforming his invisible ideas into cold, hard text describing sounds and pictures to be duplicated on the silver screen. This is the First Draft.

The writer then presents his masterpiece to friends, agents and producers for review, and begins revisions based on their feedback—or, in some cases, demands. "The main character needs more macho," says the director. "Let's change his name from Herman to Maxwell." The screenwriter used to gulp and anticipate three days to retype this simple change. Now he pipes up, "No sweat. I'll globally search and replace it. You'll have it back in the morning."

If the script is bought by a studio

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or producer, it enters the Development Phase where director and cast are assigned. More changes occur as the female lead becomes a male or the locale switches from Brazil to Las Vegas to save on airfare.

Next comes the Production Script. The production manager "breaks down" the text page by page, assigning numbers to each scene. This lets him remove them from chronological order and place them into a shooting schedule. All scenes called "INT. THE HOUSE—DAY" are filmed in the same week al-

though they may appear hours apart when spliced into final film. The script is budgeted based on, among other things, number of shooting days, travel to locations, number of extras ("cast of thousands") and special equipment required. This is where the writer's multi-million dollar extravaganza turns into a nice local love story. More rewrite, retype and reprint.

Last but far from least is the Shooting Script itself. The next day's scenes are invariably edited each night on location, if not moments

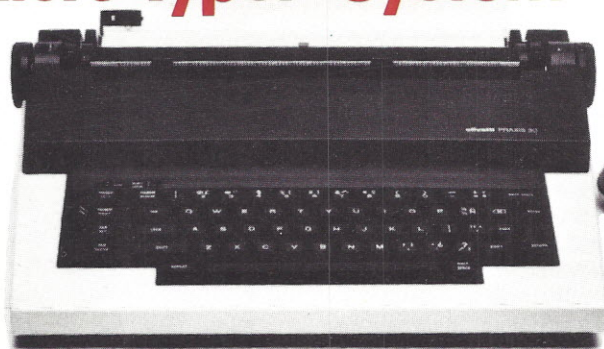
before the cameras roll. Let's say the star decides he can't say that line comfortably, ("Frankly, my dear, I don't give a ****") or a storm sets in and the barnyard scene moves into the ranchhouse. The speed of output required to get the cast and crew these changes is dramatic.

After several years of lamenting this situation, however, some microcomputer programs have finally been written to help the writer concentrate on writing, not reformatting. (See N. Patrick Neary's *Portable Scriptwriting* article in this issue for one method.) One available for Osbornites is called SCRIPTOR from Screenplay Systems (211 E. Olive, Burbank, CA 91501—213/843-6557). Steve Greenfield and Chris Huntley, each experienced in programming and screenwriting, got tired of endlessly juggling their scripts. A year later, SCRIPTOR was fully formed to rearrange text that has been composed and revised with WordStar or other CP/M word processors. While future versions may combine a text editor with script parameters plus revision abilities, SCRIPTOR now eliminates most of the effort from renumbering scenes and/or inserting scenes and pages by doing it to your specifications—a blessing for production script revisions.

After revising the script text itself, you put SCRIPTOR in Drive A and the text disk in Drive B, then run SCRIPTOR on your text file. Functioning as a reformatting and print program, SCRIPTOR automatically reforms dialogue paragraphs once text has been added/deleted and the right margin is askew, breaks dialogue paragraphs at page bottom and inserts proper indicators and character's name at top of next page, rearranges page and scene numbers consecutively as well as adding CONTINUEDs to top and/or bottom of page as desired. It can also let you choose page endings interactively so "INT. HOUSE—DAY" doesn't appear at the end of a page with its scene beginning on the next, or the "CUT TO:" doesn't slip over onto the page following its scene—common problems for computerized writers until now. It also enables you to design margin formats, and move all dialogue over a few spaces after

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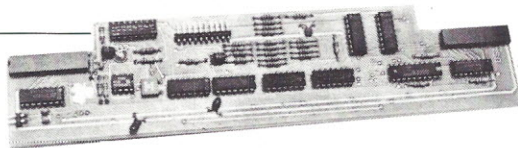
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composing and printing if you need to squeeze in a few more letters per line to turn 124 pages into 120 without rewriting.

SCRIPTOR works best with double density and 80-column options, but is available in single density version (you have to change software disks for print program once text is revised with the revision software). With 52-column screens, you don't see the entire SCRIPTOR menu at once, but can easily scroll over to the right to make choices. After customizing the menu parameters the first time, however, you need only re-input those with changes after later text revisions.

The real beauty of this system is that it not only rearranges and prints the text as you want it, but stores it on disk verbatim so "what you got is what you see" when you start your next revision—formatted on disk and on-screen exactly as the pages you are working from. You can print the entire script or individual pages by chaining between files and disks, with SCRIPTOR numbering pages consecutively as desired.

"The screenwriter used to gulp and anticipate three days to retype a simple change. Now he pipes up, 'No sweat. I'll globally search and replace it.'"

SCRIPTOR's manual is well constructed and easy to follow if you are familiar with screenplay format. (If not, check out Syd Field's book "Screenplay" or others on the craft of writing for films and TV to learn more about the whys and hows of script formatting in first draft.) There is a demonstration using Ibsen's "A Doll's House" in screenplay form on SCRIPTOR's disk to walk you through learning to use its features.

SCRIPTOR cannot solve the problems of writing a script from scratch, nor rearrange every format, but it is a giant step in the right direction. Priced at \$295 (10 percent discount for Writers Guild Mem-

bers and *Word Processing News* subscribers), this program is most helpful if you write and revise several TV episodes or film scripts each year. It is essential for film production companies requiring scene/page number changes. A future version will include TV videotape two-camera format as well.

If you have found other ways to deal with your film scripting needs via Osborne, please write % *Portable Companion* to share them with your fellow scribes.

Barbara Elman publishes "WP News," a word processing newsletter for writers.



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Beginner's Luck

Word Processing Made Easier

Cheryl Peterson

I hate typewriters. Not because I don't like the keyboard setup, but because it's impossible to edit on one. I can type 60 words a minute on a computer with WordStar. I can type 10 words a minute on a standard typewriter.

Getting an Osborne was just the kick I needed to be a "serious writer." After owning one for almost a year, I'd like to share some of the things I've learned and discovered that make writing so much easier.

Early on, I discovered that one must be careful not to completely fill a diskette. Yes, the WordStar manuals DO warn you—if you read them carefully. But how do you know how full your diskette is getting? You can estimate. Or you can be sure by running the XDIR program before editing a file while at WordStar's "No-file" menu. The R command is the designator for running a program while within WordStar; all that's required is to type XDIR when prompted with "COMMAND?". If the logged drive is B, WordStar searches for XDIR first on the B drive and if not found, automatically looks for it on the A drive.

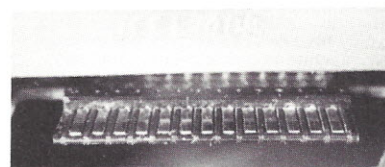
Do you get tired of typing your letterhead whenever you write a letter? Let's put a stop to that right now. Boot up your WordStar diskette. Create a document file called LH. Now, type your letterhead just as you want it to look on your letters. Got it? O.K. You didn't put the write protect tab back on your WordStar diskette, did you? If you did, remove it. **SAVE** the file on the WordStar diskette in the A drive.

Anytime you need a letterhead on a document, position your cursor at the top of the letter and do a ^KR. When you are prompted to enter the filename to read, type A:LH. If you use the same signature block repeatedly, you can do the same thing for it. Mine just happens to be called A:SS for "Salutation and Signature."

There are certain aspects standard to most writing, especially page format. Most business correspondence and manuscripts use the same page layout, 50–60 space line, double-spaced, with at least an inch margin all the way around, and paragraphs indented five spaces.

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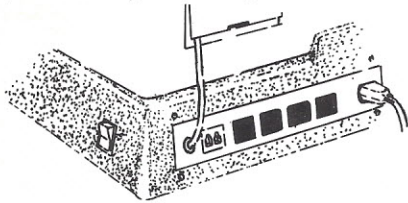
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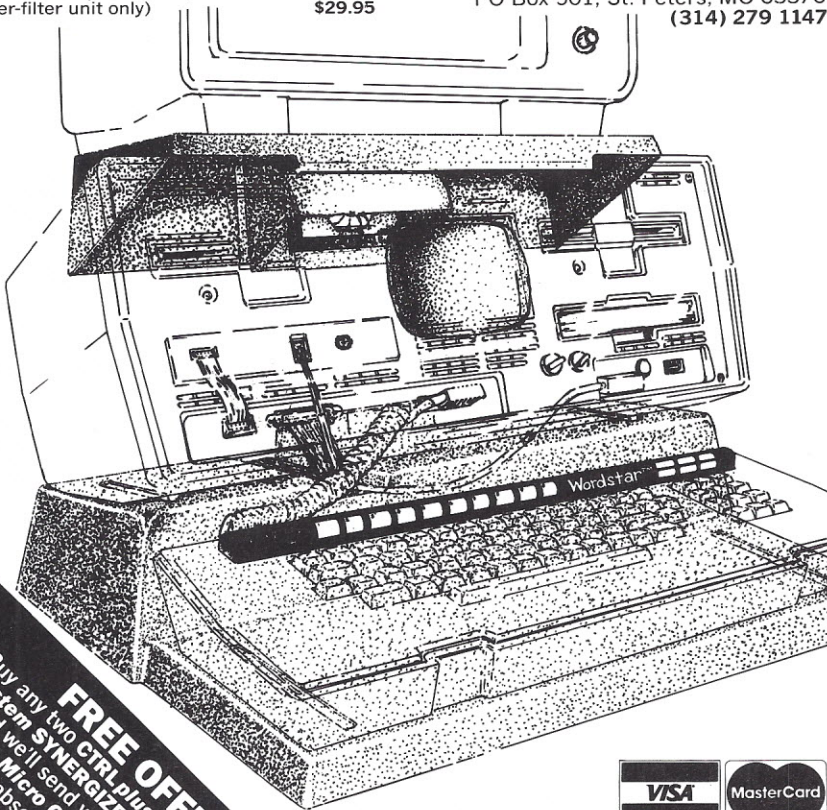
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use the control functions ^OL and ^OR to set the margins. Useful. Also, time consuming. Let's speed our work up a little.

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I like to be able to see everything I've typed as I go along. So, I use a fifty space line. Put your CP/M System diskette in Drive A and your WordStar diskette (sans write protect tab) in Drive B. Boot up. Type SETUP. You will be asked which drive you want to set up. Type B. You will see a menu of parameters to change. Press F. Now, choose the number key you'd like to format to set your margins. I use 1.

Press the number you chose, 0-9. Type the keys you would use to change your margins; for me, ^OL01 (cr) ^OR50 (cr). You don't need to put in any spaces. Type it just like you would if you were actually changing the margins. When you have finished press the escape key twice. You'll be given the chance to reformat something else if you choose. For now, type an X and a carriage return. You will see the prompt, "Destination (A, B or "X" to exit)." Since you want to put this on your WordStar diskette in Drive B, type B. That should do it.

Now anytime you want your lines to be this length, type ^#, where # is the number that you just formatted. You can format any of the number keys in this way. Table 1 shows how I have my keys formatted. Let me explain each one.

The first one is a handy way to prevent losing material. By typing ^0, I save my file and return the cursor to the same position. If I am called away momentarily, I use this to make sure an accident doesn't rob me of my work. I also use it at least once per page (usually while I'm gathering my thoughts) for the same reason.

The second one sets my margins. I have added the ^OJ as well. This turns justification off, since most editors and typesetters would just as soon see ragged edges.

The third one changes line spacing

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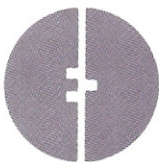
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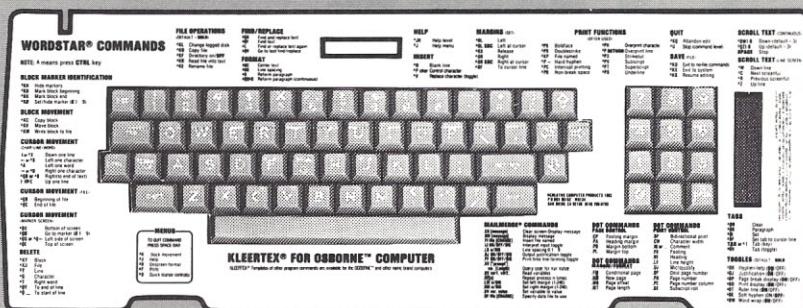
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
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to two. The fourth one changes the help level to 0. This allows me to see more of the page I've just written. The fifth one changes the help level back, just in case I have a sudden loss of memory. You never can tell when you're going to forget how to delete a line or do a block move.

The sixth one is useful when I don't want to use my standard sign-off. It clears all tabs. Then it resets them at five spaces, 26 spaces and 30 spaces.

The seventh one resets the line spacing to 1. It comes in handy occasionally.

The last one is a special editing feature. It moves the cursor to the beginning of the file and then finds the first occurrence of the backslash (\) symbol. "Whatever for?" you wonder. I have the WORD-PAC programs that Osborne ran a special on. One program, Spell-guard, marks your spelling errors for you by changing the last character of the word you misspelled to a different, easily identified character. The default character that it uses is an "@". Since I might use that symbol for its intended purpose, I chose to change it to the backslash. I can't really picture myself using this symbol. In this way, I can go through a file and change all the mistakes quickly.

These are just a few of the easy ways to get more use from the programs available for the Osborne 1. Some of them may seem obvious, but they're useful to the novice user. If you have questions on utilizing any of these options, just look them up in your manual or place a request for a more detailed article with the *Companion*. 

A PRINTER
CENTRONICS

B BAUD RATE
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C SCREEN SIZE
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D AUTO HORIZONTAL SCROLL
ON

E FUNCTION KEYS

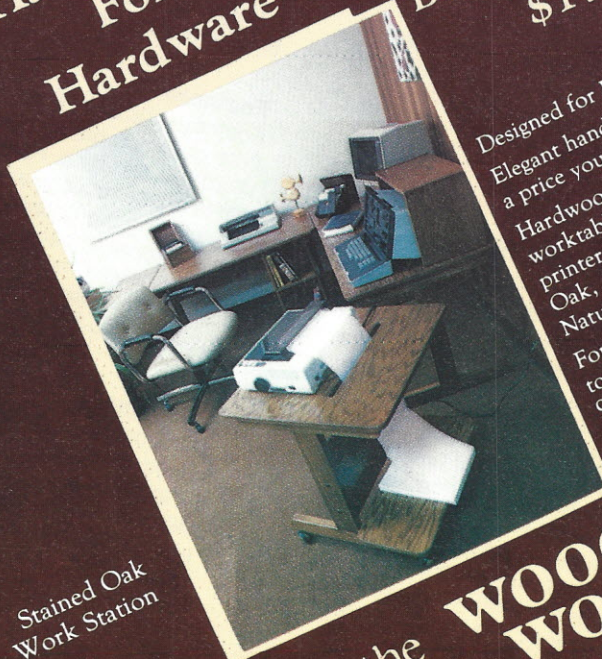
F ARROW KEYS
WORD STAR

```
0: ^KS ^QP
1: ^OL01 (CR) ^OR50 (CR) ^OJ
2: ^OS2 (CR)
3: ^JH0
4: ^JH3
5: ^ONA (CR) ^OI005 (CR) ^OI026 (CR) ^OI030 (CR)
6: ^OS1 (CR)
7: ^QR ^QF \ (CR) (CR)
8: 8
9: 9
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The easy way to create custom application programs through English language interaction with your Osborne computer. Personal PEARL asks you for examples of the results you require and then produces an applications program to provide them. For the individual who requires custom computer solutions without the cost and time delay of hiring a programmer. A flexible report generation facility is built into Personal PEARL. (*Relational Systems International®*)

Personal Datebook™

This popular program handles a calendar and appointment schedules for two people or offices (using Osborne 1 single density), keeping an accurate and complete schedule for the busy executive or professional. Personal Datebook saves frustration when trying to find a convenient time for a staff conference—it automatically finds a time when all staff members are available. A valuable tool for time management, Personal Datebook keeps a permanent record of each day's activities and provides print-out functions for future reference. (*Organic Software®, Digital Marketing™*)

DataStar™

DataStar is an easy-to-learn, versatile and comprehensive data entry program, retrieval and update system for your Osborne. DataStar handles recordkeeping applications from initial form design through updating, addition/deletion, and search/ retrieval of records. DataStar is designed to support speed and accuracy, allowing fast typists to operate at their best rate. The programs comprehensive HELP messages and instructions also provide the assistance the inexperienced user needs. (*MicroPro™*)

Disk Doctor™

This program reclaims damaged diskettes and allows you to recreate accidentally erased files. Disk Doctor helps the Osborne user to restore damaged or faulty diskettes to a usable condition, recovering as much data as it can. As an added benefit, Disk Doctor can also be used to certify new diskettes and eliminate any bad sectors before they can cause problems. (*SuperSoft™*)

Footnote™

Footnote numbers and formats footnote calls and the actual words in WordStar text files. Footnote numbers notes consecutively, and formats the file, placing the notes at the bottom of the appropriate page, or, at the user's option, moving them out of the text to a separate footnote file. (*Pro/Tem Software, Inc.™*)

Milestone™

Milestone is used for planning priority scheduling and tracking of small projects on your Osborne computer. Milestone creates Gant project charts and can be configured to find the critical path of a project. Two kinds of users will find Milestone helpful: project planners who are not yet using computers as planning tools, and planners who are disenchanted with their powerful project planning systems on minis or large frames. (*Organic Software®*)

Enumerator™

Enumerator adds variable line numbering abilities to documents created by WordStar. Enumerator allows you to number by line in any sequential pattern (ideal for attorneys, text writers and BASIC program writers). (*The Orthocode Corporation™*)

dBASE II™

dBASE II is a powerful, easy-to-use data management tool for constructing and manipulating numeric and character information files. A special feature of dBASE II is its own English-style program-building-language. You may SORT, EDIT, or DISPLAY a database directly from the keyboard, or write menus and programs to support your specific applications. (*Ashton-Tate, Inc.™*)

System Checker™

A very simple verification program which allows the Osborne owner to have confidence in operation of his computer. A comprehensive series of tests analyze memory, disk drives, visual display, CPU and printer. Each test shows an easy to understand pass/fail response. A manual helps the user to understand what each option tests, and what the responses mean in easy-to-understand terms with no computer jargon. (*Supersoft™*)

SuperSort™

Allows the Osborne user to perform sorting, merging, and record-selection functions on data files. SuperSort is compatible with BASIC, Fortran, Cobol and assembler applications programs, and can also be used with mail lists maintained with Mailman™ and WordStar. Sorts up to 32 files into a single output file, automatically using external merge as necessary, depending upon the amount of data and memory available. (*MicroPro™*)

Grammatik™

Grammatik provides the Osborne user with a unique program that analyzes written styles at both the word and the sentence level. This document-checking system checks for two sources of potential problems; style and typographical errors. Style analysis includes checks for specific phrases commonly recognized as being poor or wordy usage, as well as compiling statistics about word and sentence length. Typographical checking detects a number of errors such as: double words, capitalization at the beginning of sentences, and inconsistent and punctuation marks. (*Aspen Software Company™*)

Money Maestro™

Money Maestro is designed to provide financial recordkeeping, tax reporting and budgeting for professionals, clubs, families and very small businesses. Those who recognize the benefits of accurate records, but don't require full-blown double-entry accounting systems, will find Money Maestro to be the fast, simple and complete money management package they seek. (*Innosys, Inc.™*)

Microsoft® Basic Compiler

Allows Osborne users to compile their MBasic interpretive programs into true Z80 machine code. The Basic Compiler provides you with three major benefits: 1) increased speed of execution for most programs; 2) decreased program size for extremely large programs, and 3) source code security. When you distribute a compiled program, you distribute optimized machine code, not source code. Consequently, you distribute your program in very compact form and protect your source program from unauthorized alteration. The package also included a relocatable Z80/8080 assembler for use under CP/M. (*Microsoft™*)

Mailman™

Mailman creates and manages your mailing list. Formatted screen entry with eight different selecting criteria gives the Osborne user ease of access and entry, along with discrete listing capabilities. In addition, the program automatically sorts data by zip code and name. Mailman is designed to work with WordStar and MailMerge®. (*Standard Microsystems™*)

BSTAM™

BSTAM is a telecommunications program that allows the Osborne user to send and receive any CP/M file with complete error checking. The BSTAM documentation gives the user a comprehensive overview of types of channels, modes of transmission, sending and receiving any CP/M file. A copy of BSTAM is required on both systems involved in the communication. (*Byrom Software™*)

Real Estate Investor Calc-aid™

A SuperCalc™ overlay designed for both the real estate professional and the potential home-buyer or seller. Using SuperCalc's "What-if" capabilities, comparative analysis of the complex factors involved with real estate investment can be performed swiftly. Models are supplied for individual residence or income property analysis. (*SimpleSoft™*)

Documate/Plus™

This is an indexing program that works with WordStar to create an automatic text index or table of contents. Documate/Plus supports up to 8 levels of sub-indexing, and you can choose to index either words or phrases. (*The Orthocode Corporation™*)

Spellguard™

Spellguard is a computer program that helps the user to eliminate spelling and typographical errors in written materials prepared with WordStar. Two dictionaries are supplied with Spellguard: the first consists of 20,000 of the most frequently used words in the English language and the second contains 10,000 words and can be easily expanded to include technical vocabulary and/or foreign languages. (*Sorcim™*)

muMATH-80™

muMATH-80 is a fully interactive Symbolic Math System that efficiently and accurately performs true algebraic and analytic operations. muMATH can evaluate and simplify expressions containing variables that have not been assigned numeric values. The muSIMP-80™ programming language is provided with this package to extend muMATH or to implement other Artificial Intelligence applications. However, most Osborne users will find muMATH sufficiently powerful to handle the majority of their mathematical problems. (*The Soft Warehouse™*)

Math*™

This program interacts with WordStar to add basic math capability to your Osborne computer. Math* performs addition, subtraction, multiplication and division. Within your WordStar document, Math* allows you to perform math functions in either rows or columns. (*Force Two®*)

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CalcAids

Budget/Check

A SuperCalc double-header

J.R. Garfield

Here is a set of CalcAids that are bound to delight both you and your banker. This SuperCalc setup consists of two different modules. The first CalcAid, entitled BUDGET, allows planning a budget and projecting income and expenses for a year in advance. The percentage of each expense and income account is calculated and plotted with a bar graph. Your income and expense patterns can easily be seen from this chart.

The second CalcAid is a check-book program with several useful features. It will keep you up-to-date on your income and expenditures, keep your main balance updated and allow several subaccounts to keep you better informed on your financial progress. Subaccount percentages are calculated in BUDGET and used by CHECK to automatically allocate deposits and withdrawals to various subaccounts. We'll go into this useful feature in more depth later. CHECK has room for 40 entries and so each month, or as often as necessary, a fresh spreadsheet can be recalled and initialized with the starting data and previous balances.

Before we begin building BUDGET, a word about the SuperCalc INSTALLS.COM program. To enter this routine make sure the SuperCalc diskette is in Drive A and type INSTALLS after the A >. Follow this with a [Y] and a [RETURN] in response to the program name question. Now you can modify the screen width by entering the screen menu option. Changing the width from 52 to 128 characters will make an interesting change in the way SuperCalc responds to your cursor movement commands. This change has both advantages and disadvantages. If the screen width is set at 128, you can scan your worksheet with the arrow keys.

This wide screen mode is handy when running trade studies to define a computer model's sensitivity to input changes or with other projects that are not input intensive. The disadvantage, however, is that every time you make a new entry the screen has the distracting habit of leaping back to the left justified position, leaving you to wonder just what was entered and where. Too bad you can't have the best of both

worlds. Any SuperCalc setup will have screen dimensions internally stored when created, and changing the screen size later with a new INSTALLS call will not effect a previously setup program. So much for that; now back to BUDGET and CHECK.

These CalcAids could have been documented with a simple straightforward listing of the contents of all cells, but such a documentation approach would ignore one of SuperCalc's most powerful advantages. It is true that the attraction of SuperCalc lies in its flexibility and ease of learning, but one of its main attractions is the ease with which equations can be generated. You do not have to think about loops, indexes or output formats, and the potent Replicate instruction makes generating a large program a pleasure. If you don't yet fully appreciate the ease with which a complex SuperCalc program can be gener-

ated, read on; in CHECK we will generate 280 compound "IF" equations, each different, with two quick Replicate instructions.

Now let's see just how easy it is to create a SuperCalc budget and checkbook program.

Budget

STEP 1: To start on BUDGET first make a list of all income sources and expenses; a sample list is shown in Figure 1. In the example, expenses have been divided into the three following categories: living expenses, commitments and charitable.

STEP 2: Starting with a blank worksheet, set the formats and place the dividing lines. If you find it necessary to change the number of income or expense accounts, beware. The following steps require extensive row address modifications. It is much easier to enter the sheet

with the same number of rows shown, then later, when BUDGET is complete, customize it by adding or subtracting the desired rows. The changes are easy using the insert or delete commands. Figure 1 shows the results produced by the following SuperCalc inputs:

```
1) /<F>ormat, <E>ntry, C5:Q47<CR>, $, <CR>
2) /<F>ormat, <C>olumn, A<CR>, 23<CR>
3) /<F>ormat, <C>olumn, B<CR>, 1<CR>
4) /<F>ormat, <C>olumn, D<CR>, 1<CR>
5) /<F>ormat, <C>olumn, R<CR>, 1<CR>
6) =B1<CR>
7) "!<CR>
8) /<R>eplicate, B1<CR>, B2:B47<CR>
9) =D1<CR>
10) "!<CR>
11) /<R>eplicate, D1<CR>, D2:D47<CR>
12) =R1<CR>
13) "!<CR>
14) /<R>eplicate, R1<CR>, R2:R47<CR>
15) =A3<CR>
```

1	A	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	S
11	983 BUDGET	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL	PERCENT	BAR GRAPH OF PERCENTAGES (# = ABOUT 2%)
21	(PRINT A1:S47)															
31	-----															
41	INCOME															
51	His Job	1700.00	1700.00	1700.00	1700.00	1700.00	1700.00	1700.00	1700.00	1700.00	1700.00	1700.00	1700.00	20400.00	54.18%	*****
61	Her Job	1200.00	1200.00	1200.00	1800.00	1200.00	1200.00	1200.00	1200.00	1800.00	1200.00	1200.00	1800.00	16200.00	43.03%	*****
71	Their Job	200.00	.00	.00	200.00	200.00	.00	100.00	150.00	.00	.00	200.00	.00	1050.00	2.79%	\$
81	-----															
91	TOTAL INCOME	3100.00	2900.00	2900.00	3700.00	3100.00	2900.00	3000.00	3050.00	3500.00	2900.00	3100.00	3500.00	37650.00	100.00%	
101	-----															
111	EXPENSES															
121	LIVING															
131	Food	341.00	304.00	341.00	330.00	341.00	330.00	341.00	341.00	330.00	341.00	330.00	341.00	4011.00	10.97%	*****
141	Clothing	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	1200.00	3.28%	##
151	Transportation	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	1800.00	4.92%	##
161	Entertainment	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	600.00	1.64%	\$
171	Misc.	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	600.00	1.64%	\$
181	School	200.00	200.00	200.00	200.00	.00	.00	.00	300.00	200.00	200.00	200.00	200.00	1900.00	5.20%	###
191	Medical/Dental	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	720.00	1.97%	\$
201	Utilities	175.00	175.00	175.00	175.00	175.00	175.00	175.00	175.00	175.00	175.00	175.00	175.00	2100.00	5.74%	###
211	Life/Car/Home ins.	380.00	40.00	40.00	40.00	40.00	150.00	40.00	40.00	40.00	40.00	60.00	150.00	1060.00	2.90%	\$
221	Property Tax	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	600.00	.00	600.00	1.64%	\$
231	Christmas	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	500.00	1000.00	1500.00	4.10%	##
241	Gifts for Ossie	.00	.00	300.00	.00	.00	.00	2300.00	.00	.00	.00	.00	.00	2600.00	7.11%	####
251	-----															
261	SUBTOTAL	1506.00	1129.00	1466.00	1155.00	966.00	1065.00	3266.00	1266.00	1155.00	1166.00	2275.00	2276.00	18691.00	51.13%	*****
271	-----															
281	COMMITMENTS															
291	House Payment	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	7200.00	19.70%	*****
301	Car Payment	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	3000.00	8.21%	###
311	Bank Loan	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	1260.00	3.45%	##
321	Bank Card	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	600.00	1.64%	\$
331	Furniture	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	720.00	1.97%	\$
341	Department Store 1	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	420.00	1.15%	\$
351	Department Store 2	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	300.00	.82%	
361	-----															
371	SUBTOTAL	1125.00	1125.00	1125.00	1125.00	1125.00	1125.00	1125.00	1125.00	1125.00	1125.00	1125.00	1125.00	13500.00	36.93%	*****
381	-----															
391	CHARITABLE															
401	Church	310.00	290.00	290.00	370.00	310.00	290.00	300.00	305.00	350.00	290.00	310.00	350.00	3765.00	10.30%	*****
411	Other	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	600.00	1.64%	\$
421	-----															
431	SUBTOTAL	360.00	340.00	340.00	420.00	360.00	340.00	350.00	355.00	400.00	340.00	360.00	400.00	4365.00	11.94%	*****
441	-----															
451	TOTAL EXPENSES	2991.00	2594.00	2931.00	2700.00	2451.00	2530.00	4741.00	2746.00	2680.00	2631.00	3760.00	3801.00	36556.00	100.00%	
461	-----															
471	NET SUMMARY	109.00	415.00	384.00	1384.00	2033.00	2403.00	662.00	966.00	1786.00	2055.00	1395.00	1094.00	1094.00		

Figure 1


```

16) ?<CR>
17) /(R)eplicate,A3<CR>,C3<CR>
18) /(R)eplicate,A3<CR>,P3<CR>
19) /(R)eplicate,A3<CR>,S3<CR>
20) /(R)eplicate,A3<CR>,A25<CR>
21) /(R)eplicate,A3<CR>,C25<CR>
22) /(R)eplicate,A3<CR>,A36<CR>
23) /(R)eplicate,A3<CR>,C36<CR>
24) /(R)eplicate,A3<CR>,A42<CR>
25) /(R)eplicate,A3<CR>,C42<CR>
26) =AB<CR>
27) ?<CR>
28) /(R)eplicate,AB<CR>,C8<CR>
29) /(R)eplicate,AB<CR>,A44<CR>
30) /(R)eplicate,AB<CR>,C44<CR>
31) /(R)eplicate,AB<CR>,P44<CR>
32) /(R)eplicate,AB<CR>,Q44<CR>
33) /(R)eplicate,AB<CR>,S44<CR>
34) /(R)eplicate,AB<CR>,A46<CR>
35) /(R)eplicate,AB<CR>,C46<CR>
36) /(R)eplicate,AB<CR>,P46<CR>
37) /(R)eplicate,AB<CR>,Q46<CR>
38) /(R)eplicate,AB<CR>,S46<CR>
39) /(F)ormat,(C)olumn,S<CR>,30<CR>

```

Figure 1a

STEP 3: At this point enter the headings along the top and down the left side of the sheet. This information is also shown in Figure 1a. Our SuperCalc sheet is now ready to have the data and equations entered.

STEP 4: Enter the data in columns C through N. The easiest way to input this information is by entering all data in column C, replicate the total column across the page and then change the few cells that are incorrect. The replicate function will also finish the line work in rows 8, 25, 36, etc. These lines were not automatically completed because of the \$ format previously placed in the center cells. The column C entries are shown in Figure 2.

STEP 5: Replicate column C across the spreadsheet.

40) /(R)eplicate, C5:C47<CR>, C6:N6<CR>

STEP 6: Now work systematically across the sheet changing income or expense amounts that require modifications. Values, such as car payment, which are the same in all columns will not need attention since these values will already have been

accurately reproduced by the replicate command.

1 9 8 3	B U D G E T		
C5 \$	= 1700	C27 \$	=
C6 \$	= 1200	C28 \$	=
C7 \$	= 200	C29 \$	= 600
C8 \$	P= ' =	C30 \$	= 250
C9 \$	= SUM(C5:C7)	C31 \$	= 105
C10 \$	=	C32 \$	= 50
C11 \$	=	C33 \$	= 60
C12 \$	=	C34 \$	= 35
C13 \$	= 341	C35 \$	= 25
C14 \$	= 100	C36 \$	P= ' =
C15 \$	= 150	C37 \$	P= SUM(C29:C35)
C16 \$	= 50	C38 \$	=
C17 \$	= 50	C39 \$	=
C18 \$	= 200	C40 \$	= .11C9
C19 \$	= 60	C41 \$	= 50
C20 \$	= 175	C42 \$	P= ' =
C21 \$	= 380	C43 \$	P= SUM(C40:C41)
C22 \$	= 0	C44 \$	P= ' =
C23 \$	= 0	C45 \$	P= C26+C37+C43
C24 \$	= 0	C46 \$	P= ' =
C25 \$	P= ' =	C47 \$	P= C9-C45
C26 \$	P= SUM(C13:C24)		

Figure 2

STEP 7: Now we sum the rows.

41) =P5<CR>

42) SUM(C5:N5)<CR>

43) /(R)eplicate, P5<CR>, P6:P45<CR>

STEP 8: The cells which should be blank or filled with lines can now be corrected with a [/ (B)lank, P10<CR>], [' - <CR>] or [' = <CR>].

STEP 9: Column Q is our next step. The percentage equations shown in Figure 3 should be entered. Hint: enter the equation into Q13 then replicate it to Q5:Q43—then change cells with improper entries. In CHECK we will find the percentages calculated by these equations useful for allocating transactions.

1 9 8 3	B U D G E T		
Q5 \$	P= 100P5/P9	Q23 \$	P= 100P23/P45
Q6 \$	P= 100P6/P9	Q24 \$	P= 100P24/P45
Q7 \$	P= 100P7/P9	Q25 \$	P= ' =
Q8 \$	P= ' =	Q26 \$	P= 100P26/P45
Q9 \$	P= SUM(Q5:Q7)	Q29 \$	P= 100P29/P45
Q10 \$	P=	Q30 \$	P= 100P30/P45
Q11 \$	P=	Q31 \$	P= 100P31/P45
Q12 \$	P=	Q32 \$	P= 100P32/P45
Q13 \$	P= 100P13/P45	Q33 \$	P= 100P33/P45
Q14 \$	P= 100P14/P45	Q34 \$	P= 100P34/P45
Q15 \$	P= 100P15/P45	Q35 \$	P= 100P35/P45
Q16 \$	P= 100P16/P45	Q36 \$	P= ' =
Q17 \$	P= 100P17/P45	Q37 \$	P= 100P37/P45
Q18 \$	P= 100P18/P45	Q40 \$	P= 100P40/P45
Q19 \$	P= 100P19/P45	Q41 \$	P= 100P41/P45
Q20 \$	P= 100P20/P45	Q42 \$	P= ' =
Q21 \$	P= 100P21/P45	Q43 \$	P= 100P43/P45
Q22 \$	P= 100P22/P45	Q44 \$	P= ' =
		Q45 \$	P= Q26+Q37+Q43

Figure 3

STEP 10: Row 47 needs to be corrected by editing cell D47 and rep-

licating it to E47:N47. The [/ (E)dit, D47<CR>] should yield [D9 - D45], which should be changed to [D9 - D45 + C47] so the previous monthly sum is added to the current monthly balance.

44) /(R)eplicate, D47<CR>, E47:N47<CR>

STEP 11: Enter the following:

45) =P42<CR>

46) P9 - P47<CR>

47) =S5<CR>

48) 0.5 + Q5/2

Note the bar graph which automatically appears; remember this column was previously formatted with an asterisk. Dividing the value in Q5 by 2 is required to fit the bar graph in the 30 character column width and the added 0.5 rounds the number of asterisks to the nearest percentage.

STEP 12: All that remains is to replicate the bar graph equation down the column.

49) /(R)eplicate, S5<CR>, S6:S7<CR>

50) /(R)eplicate, S5<CR>, S13:S43<CR>

The finished version of BUDGET is shown in Figure 1.

STEP 13: With a new diskette in Drive B, save BUDGET.

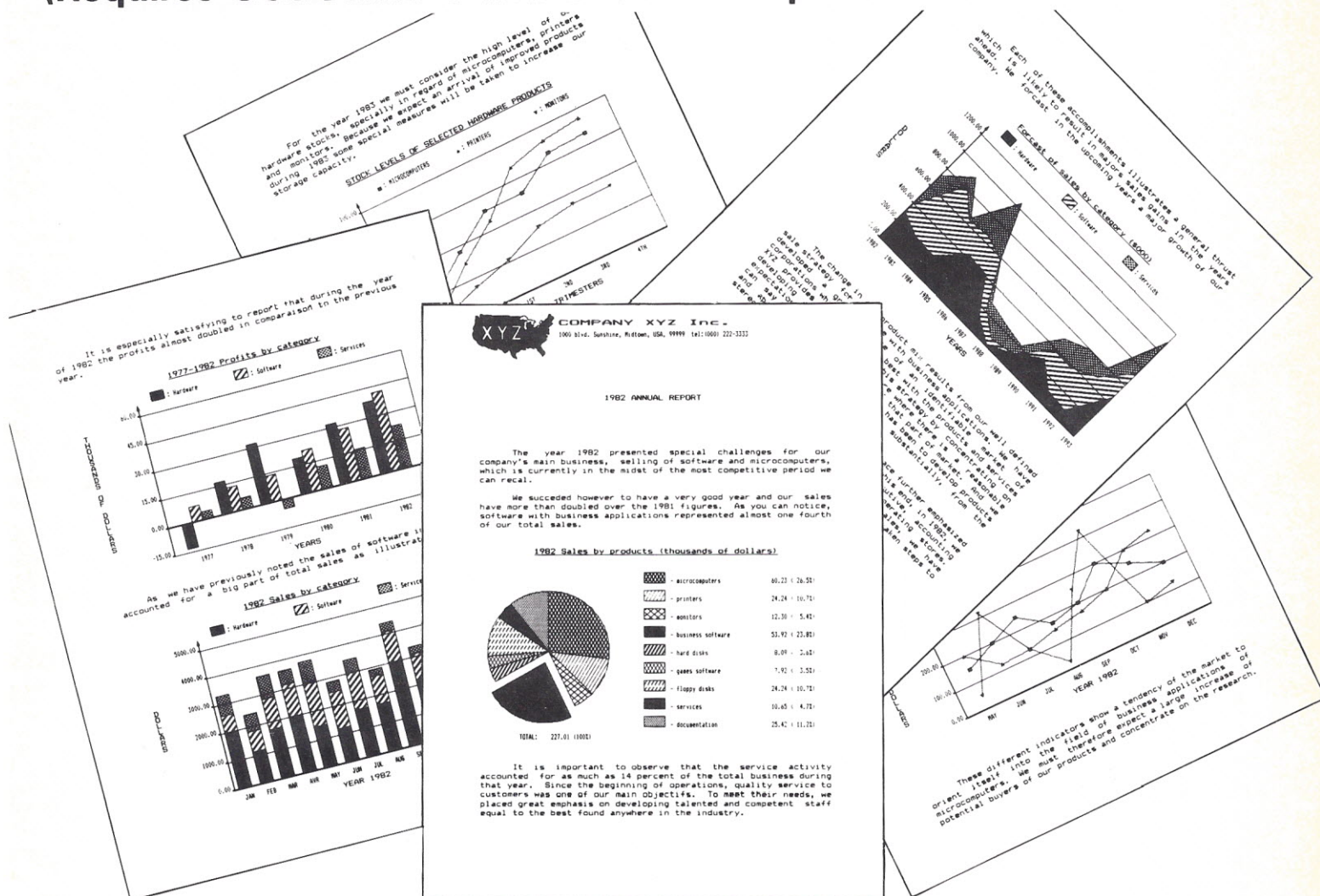
51) =A1<CR>

52) /(S)ave, B:BUDGET<CR>, A

Check

At this point you should have your budget planned and be ready to create CHECK. This second CalcAid will work with BUDGET and allow you to track your progress as the weeks and months pass. It is not practical to have as many CHECK subaccounts as budget items, so the budget row must be consolidated. In our example the 21 budget entries are condensed into seven checkbook subaccounts: Daily Living, Medical/Dental/Utilities, Mortgage, etc. See the bottom of Figure 5 for a complete listing of consolidations. This should allow adequate segregation of expenses to

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give you visibility of your budget triumphs and failures.

One of the most convenient features of CHECK is its ability to deposit or withdraw funds from any subaccount, or to automatically allocate a transaction through all subaccounts while still maintaining the main account balance. The automatic allocation is based on information generated in BUDGET and is requested by entering a zero in the account number column. To set this capability up so it matches your budget, enter the subaccount factors as shown in K7 through Q7. Each subaccount factor is calculated by adding the percentages (column Q of BUDGET), and dividing the sum by 100; the result is then entered into row 7. The sum of these row 7 entries must be 1.0. If the total is 0.9999 or some other number not equal to one, add 0.0001 or other suitable factor to the largest entry. This will assure a spreadsheet with subaccounts in balance.

STEP 1: To create your version of CHECK, start with a new SuperCalc sheet and perform the following formatting operations:

```
1) /(F)ormat, (C)olumn, B<CR>, 6<CR>
2) /(F)ormat, (C)olumn, D<CR>, 1<CR>
3) /(F)ormat, (C)olumn, E<CR>, 25<CR>
4) /(F)ormat, (C)olumn, F<CR>, 5<CR>
5) /(F)ormat, (C)olumn, G<CR>, 25<CR>
6) /(F)ormat, (C)olumn, H<CR>, 1<CR>
7) /(F)ormat, (C)olumn, J<CR>, 1<CR>
8) /(F)ormat, (C)olumn, R<CR>, 1<CR>
9) /(F)ormat, (E)ntry, B9:Q48<CR>,
  (I)nteger, <CR>
10) /(F)ormat, (E)ntry, I9:Q48<CR>, $, <CR>
11) /(F)ormat, (E)ntry, I50:Q50<CR>, $, <CR>
```

STEP 2: Now place the lines which dress up our spreadsheet. The [/(G)lobal, N] command will turn off the SuperCalc toggle, stopping the cursor's auto advance and leaving it located at the cell of the last entry. This will be useful in the (R)eplicate commands; the from-address will automatically be entered into the instruction line with a <CR>, e.g. in entry 15 the cursor will be located at D4 and so only [/(R)eplicate, D5:D7<CR>] need be entered to generate the command. To turn the cursor auto advance back on,

enter the [/(G)lobal, N] command a second time and the toggle will be reset.

```
12) /(G)lobal, N
13) =D4<CR>
14) "1<CR>
15) /(R)eplicate, D4<CR>, D5:D7<CR>
16) /(R)eplicate, D4<CR>, D9:D48<CR>
17) /(R)eplicate, D4<CR>, H1:H2<CR>
18) /(R)eplicate, D4<CR>, H4:H7<CR>
19) /(R)eplicate, D4<CR>, H9:H48<CR>
20) /(R)eplicate, D4<CR>, J1:J2<CR>
21) /(R)eplicate, D4<CR>, J4:J7<CR>
22) /(R)eplicate, D4<CR>, J9:J48<CR>
23) /(R)eplicate, D4<CR>, R1:R50<CR>
24) =A3<CR>
25) *=<CR>
26) =A8<CR>
27) *-<CR>
28) =A49<CR>
29) *=<CR>
```

STEP 3: The CHECK CalcAid is now ready for the heading information in rows 1 through 7 and rows 50 through 57. At this point the factors in row 7 should also be entered.

STEP 4: Now we are ready to enter the equations into columns K through Q. SuperCalc can do most of this work with a little direction from you.

```
30) =K9<CR>
31) IF (C9=1, I9, IF (C9=0,
    K7*I9, 0) ) <CR>
32) /(R)eplicate, K9<CR>, L9:Q9,
    A<NNNYN>
```

A little repair work is needed to the equations replicated into L9:Q9. The C9=1 part of the equation should read C9=2, C9=3...C9=7. This change can best be made by editing (one at a time) each of the equations and updating the number following the first C9=. Once this is done we are ready to continue.

```
33) /(R)eplicate, K9:Q9<CR>,
    K10:K48,
    A<YYYNY...YYYNY>
```

The YYYNY string should be repeated 7 times and then the sheet will automatically be filled with the correct compound IF equations.

These equations will enter zero into the cell if no value is entered into column I of that row or if the account number in column C does not match the subaccount column. If the account number matches or is zero, the appropriate dollar value will be entered.

STEP 5: In the last step we enter the summation equations into row 50.

```
34) =I50<CR>
35) SUM(I9:I48)<CR>
35) /(R)eplicate, I50<CR>,
    K50:Q50<CR>
```

STEP 6: With CHECK complete, the last step is to save the CalcAid on the same diskette as BUDGET: with the diskette in Drive B complete the last two entries.

```
37) =A1
38) /(S)ave, B:CHECK<CR>
```

One final note before you start enjoying your new BUDGET/CHECK programs, the TAX X IF DEDUC column is useful for two purposes. First, a left justified X can flag an income tax deductible entry and second, an O right justified in the column can indicate when the check has been through the bank and is no longer outstanding. This should make the terrible monthly task of reconciling your checkbook balance a snap.



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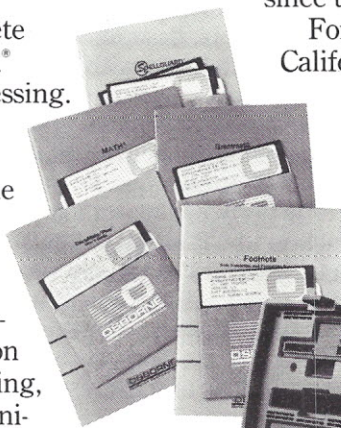
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Reviews

CP/M User Guide

Although I'm quite delighted with my Osborne 1, I am less than satisfied with the *User's Guide* that comes with the machine. When I bought my computer in November, 1981, the manual was a black loose-leaf binder; many of the instructions were rather vague and I found a number of errors. Since that time several new versions of the manual have been published, and while these are definitely an improvement over the first document, they are still not as user-friendly as an operating manual should be. This is particularly true in the CP/M section, which is a somewhat sketchy description of the operating system. I found myself confused by many of the definitions and examples and began searching for a supplemental text that would clearly discuss the features of CP/M.

Fortunately, a very useful and well-organized CP/M reference book exists. It is Thom Hogan's *Osborne CP/M User Guide* (Osborne/McGraw-Hill). The book takes up where the Osborne 1 manuals leave off, describing CP/M in more detail and with a style that is clear, concise and easy to follow. A comprehensive index in the back of the book (unlike the manuals) greatly simplifies quick referencing.

The book begins with an introduction to CP/M, including a fascinating history of the operating system and a discussion of its basic structure. Next is a thorough description of the built-in commands (such as DIR and ERA), followed by a similar section covering "transient" commands (programs which are contained in separate COM files, such as PIP and XDIR). In all cases, CP/M commands and files are discussed in a complete and thorough manner, including numerous practical examples.

Additional chapters cover more advanced topics, such as assembly language programming, multi-user networks such as CP/NET and MP/M and a discussion of the future of microcomputer operating systems.

I highly recommend this book to every Osborne 1 or other CP/M system user. Novices will find its discussions of basic CP/M commands to be clear enough to provide an understanding of such useful tools as PIP, STAT, and ERA; I suspect that many novices have failed to make use of those features due to the inadequate descriptions contained in the manuals. Advanced users will also find this book to their liking, for it contains a wealth of sophisticated CP/M information that allows advanced users to fully explore the potential of their machines. Furthermore, it is an excellent reference manual, due to its complete index and readable text.

In summary, I have a three-word message for CP/M users: buy this book.

George H. Taylor

Helix Hard Disk

We have been using the Helix 10-megabyte hard disk now for several months to implement a complete dBaseII dental office management system and can report very satisfactory results to date.

Unlike other hard disks, the Helix is connected via a very simple internal hookup directly inside the Osborne 1. Thus, the parallel port is not compromised and speed is kept to the maximum. Access time is extremely swift, reportedly 50 percent faster than through the parallel port. (Average seek 1.75 msec; average access 85 msec.)

While it is certainly possible to do a dental office system on separate floppies, the large variety of

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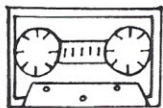
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necessary programs as well as the considerable size of the databases make floppies a cumbersome approach. Floppy flipping is also more difficult to teach to "computerphobic" office personnel.

To start the hard disk one boots the computer with a special diskette in one of the regular floppy drives. This booting diskette must be initialized with the CP/M SETUP program in the usual manner. One does not simply set up individual programs or the hard disks themselves.

Consequently, if you need to jump between different programs such as WordStar and SuperCalc, a different booting diskette must be used following a reset. Otherwise, the arrow keys or possibly the special function keys will be mis-set.

The system is configured so that the hard disk is treated as Drives A and B. The floppy drives then become C and D. Current software control allows 500 8K files per drive directory. This permits faster access and processing. However, we have been using the earlier software that permits 1K minimum file length and up to 1000 files per drive and can't complain at all about hard disk speed.

The Helix is made by Micro Computers of New Orleans, 4539 I 10 Metairie, LA 70002. Installation and backup has been excellent in the Los Angeles area.

William C. Domb, D.M.D.

GRAFIXWRITER

When I saw the ad for *GRAFIXWRITER* in *Portable Companion*, I was anxious to receive a copy of the program, but also skeptical of the advertisement's claims. It was supposed to make the Osborne's graphics easily accessible. It also claimed to allow a screen of graphics to be used within one's own MBASIC programs. Since I hoped to use it to generate pictures for the games programs I'm writing, I was torn between delirium and skepticism. After using it, I'm glad to report, delirium wins.

When it arrived, about ten days after I had sent a letter requesting it to be sent C.O.D., I sat down with the instructions and scanned

through them. I wasn't overwhelmed by the documentation, but it was adequate; clear, concise, and SIMPLE.

The remarkable aspect of this software is its simplicity. To test it out, I had my sister read the directions and create a picture. She is not, by a stretch of the imagination, a computer-oriented person. Within a few minutes, she was off and drawing. My husband, an amateur programmer, had an equal ease of mastery.

It is really as easy as 1, 2, 3.

1. Choose your character.
2. If the character is one of the standard keyboard ones, press it. If you choose a graphics character, press ^G and the number of the character chosen from a table in the instruction booklet.
3. Use the cursor to move around the page. Everywhere you go, your character will appear.

Easy, right?

Of course, changing characters should be just as easy, and it is. Press the escape key. Input your new character choice. Continue moving around. To move without putting a character on the screen, press the space bar for your character. The cursor appears, so you know where you are.

That's the basics. Pretty simple. There are, however, other helpful aspects of this program.

What if you make a mistake? How can a symbol be changed? Place the cursor at the character you want to change. An asterisk appears. If you wish to change the character to a keyboard character, press that character. If you want to change it to a graphics character, it's a little more complicated. You must place a blank space here; and then print over the blank with the graphic you want.

If you have to cross a character that is already correct, no problem. When the asterisk appears, just press the cursor again. It will move off the character, leaving it intact.

If you wish to use your page of graphics within another MBASIC program, the manual gives you a short routine to insert into your program. This 23-line routine will print your graphic, pretty as your

picture.

About the only complaints that I could imagine, is the lack of documentation for an ASCII character set table; and it's a bit slow.

The instructions prescribe adding 128 to the ASCII code of the character, in order to use the underlined version of the symbol in your screen. However, you have to look up the ASCII code in some other reference. Not exactly convenient for average computer users.

The printout of the screen takes a while to appear. Unfortunately, the picture materializes line by line. MBASIC isn't exactly the fastest executing language.

You cannot print the graphics characters that you have generated with the program on your printer. Unfortunately, the printer doesn't understand Osborne graphics symbols. Any pictures that use only standard keyboard characters, may be printed, however.

But for \$29.95, I'm not willing to knock this program. I have seen Osborne graphics programs for as much as \$150. GRAFIXWRITER does what its ads say it will do. This program is both inexpensive and effective; that's what I look for.

Cheryl Peterson

Disk Doctor

Whoever came up with Disk Doctor is either a nut or a genius. You decide which. The organization of this program is set up like a hospital, complete with wards. Each ward constitutes a different function; assign bad groups to a file called MORGUE, write bad sectors or groups to a file on another diskette, copy the damaged diskette—placing spaces in the damaged sections, recreate a file, or show a directory of all files—including the ones marked for overwrite.

I think it's ingenious, my husband thinks it's strange. But either way, it works.

A little free advice though, if you are planning on buying Disk

Doctor just to reconstruct files, don't. Anyone with a modem can get a program to recreate files off most of the public CP/M bulletin boards for the cost of a phone call. Other Osborne users can get it from the CP/M User's Group, your local Osborne User's Group or FOG. Although you may have to join the group to score a copy of the program, dues and the cost of the program will be less than the cost of Disk Doctor.

However, if you want to recover a program that your computer tried

to write to a diskette with a bad sector, you'll need Disk Doctor. And even with Disk Doctor you may not be able to salvage the whole thing. If you ever lose a sector in the disk directory, you'll need Disk Doctor to recover the files on the diskette. If you'd like to run an advance check on a diskette to be sure there are no bad sectors to ruin an important program, Disk Doctor's for you.

Disk Doctor will recover a file you have accidentally erased using the ERA (erase) program in CP/M



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or the "delete a file" command in WordStar. Providing you haven't overwritten the sectors that your old program was on, Disk Doctor can easily change the flag at the beginning of the directory entry. Instead of actually erasing the file, CP/M's ERA command merely flags the blocks that have been assigned to the file for overwrite. Public domain recovery programs will change the flag back, the same as Disk Doctor.

Well, almost the same. As I mentioned earlier, the organization of Disk Doctor is a little different. Ward D and E help cure amnesia. If you've forgotten the name of the file you just accidentally erased, don't worry! Ward E will generate a complete disk directory, including files flagged for overwrite. Flagged files will be surrounded by parentheses for easy identification. In Ward D, the amnesiac diskette is cured. You tell the doctor the name of the file, and almost instantaneously, the patient remembers it all.

A recovery program won't help you if you are looking at the dreaded words BDOS ERROR ON B:BAD SECTOR, but Disk Doctor will. If you tried to create your file on a diskette that you confirmed has write space left, all is not lost. You call the doctor and go to Ward A. This assigns all bad groups to a file called, appropriately, the MORGUE.

If your file directory is all right, but calling up your file results in those dreaded words, there is still hope. Call the doctor! Go to Ward C, where a transplant of all intact information will result in a new diskette with all your old files safely preserved. Your file with the bad sector will have survived, but the bad sector now consists of blank spaces. Isn't modern medicine wonderful?

So far, the doctor hasn't had to consult with anyone outside the office, but what do you do when the bad sector is in your directory? You're in luck if you're really familiar with the CP/M operating system. But, since you're the only available consultant, if you aren't up to using DDT you can probably kiss your files goodbye. You can try using Ward C to make a copy of the

diskette, and pray. For those who want to try their hands at being a consultant, here's what you need to know to save your files. Disk Doctor will ask you whether you want to recover files by sector or by group. By making a print-out of DDT, and studying it carefully, the necessary numbers can be decided. (Refer to "Disk Snooping," in the Dec/Jan issue, page 50, for a detailed explanation.)

About the only thing Disk Doctor doesn't do is save the file you've got hovering in memory when you can't write it to the diskette because of a bad sector. So far, I don't know of anything that will. (See editor's note.) Following, is a brief summary of the program's features:

- Ward A Assign bad groups to Morgue
- Ward B Transplant sectors or groups to recovery disk
- Ward C Recover damaged disk by copying to another
- Ward D Recover erased files
- Ward E Directory of recoverable erased files
- Exit X Exit to system

That's Disk Doctor. If you need a program with all these capabilities, it's well worth the price. If all you need is a straightforward recovery program, pass it up. You'll save some money.

Cheryl Peterson

See "Save Your ASCII" in the April/May issue of the Companion for do-it-yourself instructions on recovering WordStar memory contents. There is also a software product called IMAGE put out by Tanstaaf (6813 Kettering Circle, Fair Oaks, CA 95628) that performs WordStar memory recall automatically.—bb

Osbaud; a Baud Rate Generator

With my Osborne 1, I can up and download files from mainframes at high speed, drive a \$10,000 high-speed band printer at 19200 baud, communicate with a 110 baud

ASR33 Teletype machine, and connect to a Televideo 920C CRT running at 9600 baud for certain experimental applications (including 80-column display).

How! There's no magic involved—I simply installed Advent Products \$59.95 "Osbaud" baud rate generator and instantly had 16 dip switch selectable baud rates.

Osbaud is a small auxilliary circuit board that is soldered to the main logic board in the area behind the serial port. The 16 different rates are selected via dip switches through a small slot cut in the venting grill. A small metallic self-adhesive chart fastens to the keyboard and indicates the various settings.

Installation of Osbaud is not difficult but it does require some technical competency. The instructions and photos that accompany Osbaud are excellent and were written assuming first-time access to Ozzie's insides. Advent even provides the difficult to find .050" allen wrench that removes the brightness and control knobs—a thoughtful touch. You will need a Phillips screwdriver, Xacto knife (to cut across a circuit trace), and a low wattage soldering iron. I sug-

gest having a dealer perform the installation if you're unsure what end of the soldering iron gets hot.

Osbaud is soldered to pins 4 and 12 of the 6850 UART, pin 7 of the 74LS32, and pin 7 of the 74LS04. Caution must be exercised here: Osbaud's posts are not mechanically connected to the IC leads. An improperly soldered joint may break away if the main logic board is flexed, or the Osbaud circuit board has pressure applied to it.

Osbaud is a carefully designed and constructed package. It does not hinder any part of the computer's electronics and it can be used with double density, 80-column display, or modem options. Nevertheless, please note that installing any product that alters the original design of the computer voids your warranty.

Osbaud is available from:

Advent Products, Inc.
965 N. Main St.
Orange, CA 92667
(714) 997-0800

It comes with both blue/gray, black/brown case instructions.

Brad Baldwin



The CRT Connection

Before Osborne's 80-column SCREEN-PAC was released a popular question was, "How do I connect an external CRT as a remote terminal in order to have a 80-column 12" display?" Here's one way:

- Set your computer for 9600 baud using Osbaud or the method shown on page 22 in the Technical Manual.
- Connect a standard serial cable between the terminal and your computer. This cable is all that is required:
 - 1 ---- 1
 - 2 ---- 2
 - 3 ---- 3
 - 7 ---- 7
- Change the CRT's dip switches for:
 - 1 start bit
 - 1 stop bit
 - 8 data bits
 - no parity
 - full duplex
- Assign devices with STAT CON: = CRT:

The end result is a 80-column, 9600 baud refreshed, block cursor screen. Note that these procedures are untested with terminals other than Televideo.

New Products

CP/M User Magazine

A new "documentation magazine" for users of CP/M has released its premiere issue, and expects to double its press run for No. 2 to 25,000 copies. **User's Guide** provides tutorials and reference guides on systems and software to the more than one million users of the popular system.

The premiere issue provided a complete CP/M tutorial to act as a key to future issues. Second issue focuses on word processing and using financial spreadsheet programs. WordStar and SuperCalc are described in detail in both tutorials and "impatient user's guides."

Cover price is \$4. Subscriptions of six issues per year inside the USA are \$18 if payment accompanies order or is charged, or \$21 per year billed. Foreign subscriptions are \$24 per year with payment, \$29 if billed. For first class delivery, add \$10 to all rates. Send subscription orders to:

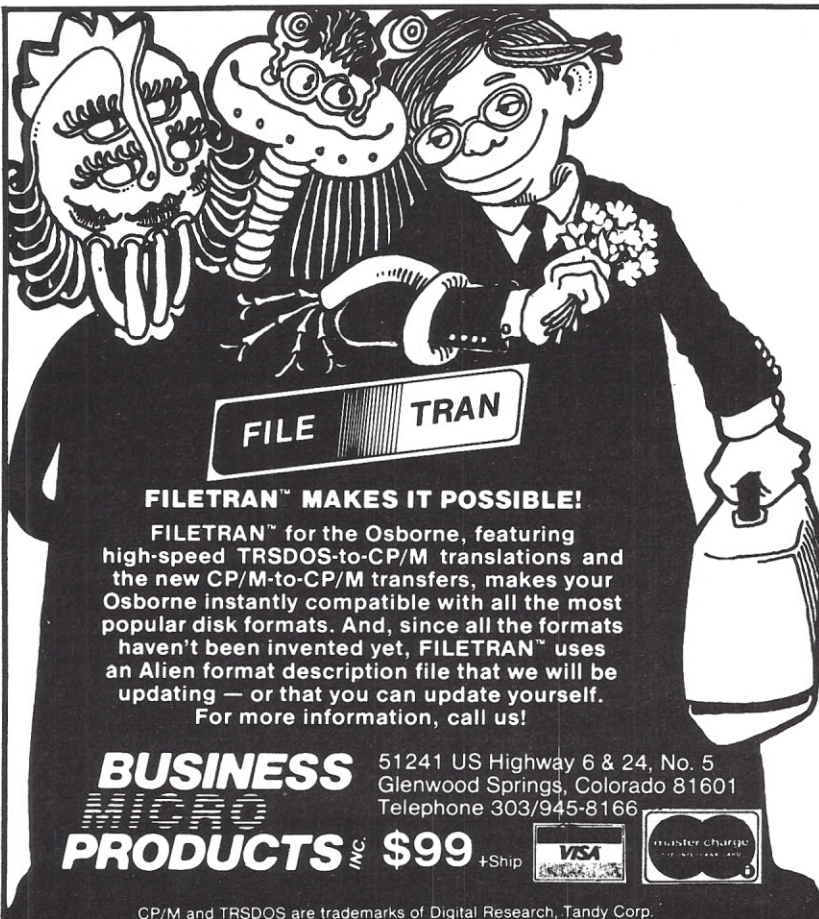
User's Guide to CP/M Systems and Software
P.O. Box 3050
Stanford, CA 94305

CP/M Public Domain, Book 4

The New York Amateur Computer Club (NYACC) has released the

fourth book in the **Catalog of Public Domain Software** series. The 215-page catalog contains tables of contents and abstracts of files, and document files on diskette volumes published by the CP/M User's Group and the SIG/M (Special Interest Group/Microcomputers).

It covers CP/MUG volumes 80-84 and SIG/M volumes 61-76. Public domain software libraries contain languages, application packages, utilities, games and more. Diskettes are available from many computer clubs and by mail. For Osborne formatted diskettes contact Paul Wiske of the New York Osborne User Group at (212) 564-7286. CP/MUG volumes from the CP/M User's Group are \$13 for 8" SSSD format and \$18 for North*Star and Apple formats: write them at 1651 Third Avenue, New York, NY 10028. SIG/M volumes are distributed on 8" by them at Box 97, Iselin, NJ 08830. Cost is \$6 for first diskette, \$5 for each additional. Add \$3 per order for overseas shipping. NYACC makes available the diskettes at meetings to members only.



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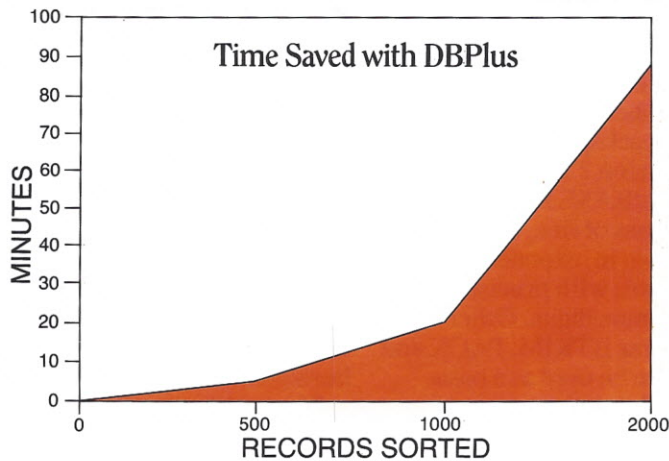
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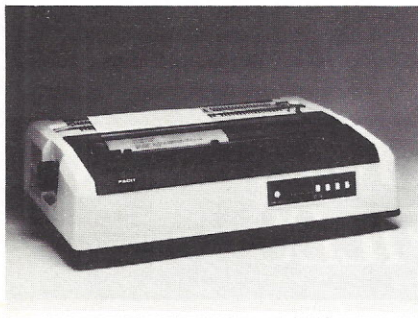
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ening and shadow printing in word-processing mode, form length and pitch set from control panel, and down line load of character set. Cost is \$1895. Contact:

Facit, Inc.
235 Main Dunstable Road
Nashua, NH 03061

Stats with dBRx

Functional capabilities of dBASE II can be increased, according to GRYPHON Microproducts, with its new dBRx package. Applicable to dBASE II version 2.3B or later, dBRx adds to dBASE II the mathematical functions of sine, cosine, arc tangent, log, ln, exponentiation and square root, with precision from seven to nine digits. Other functions such as BTRIM, PACK and NOSPACE can be used as a basis for building all the trigonometric functions and their inverses, as well as statistical and scientific functions.

It includes an on-line help session and example programs. dBRx is available now in Osborne format, as well as in Apple, TRS-80 and eight-

inch. Single machine copy retails for \$150; a master for multiple copies is \$600. Commercial license to use dBRx functions in marketable programs is \$800. Ask a local CP/M dealer for information, or write to:
GRYPHON Microproducts
P.O. Box 6543
Silver Spring, MD 20906

One Blind Snake

"The idea of the game is to manipulate a snake through a series of increasingly intricate mazes as it chases mice," says Chris Rudek, co-author of a new arcade-type game called **Snake Pit**. The strategy-action game includes complete memory-mapping of the graphics for smooth and fast action, a softly modulated bell with an on-off option, and automatic horizontal scrolling.

The snake must swallow 10 mice at each level without colliding with the sides of the pit or its own tail. The tail grows with each mouse eaten, complicating the task. A free demo disk is available upon request to any Osborne user group. Cost is \$19.95 (California residents add 6% sales tax), and orders will be shipped immediately.

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A new package from Digital Marketing has been designed to make faster and easier that most hideous of tasks: the compilation of a bibliography. **Bibliography** requires CP/M, CP/M-86 or IBM PC DOS and works with most word processors, including WordStar.

Some functions it performs: compares citations in a manuscript with entries in a card catalog to construct a bibliography of all entries cited; copies entries from the catalog to footnotes in the manuscript; replaces citations in a manuscript with numbers corresponding to the order in which works appear in the bibliography. Cost is \$125.

Digital Marketing
2670 Cherry Lane
Walnut Creek, CA 94596

Some New Routines

A new software package with full **FIG-FORTH** implementation of the FORTH language is being introduced by SofTek of Santa Fe. Included is an editor and a special function which allows the user to easily switch between FORTH and DDT to help development of new routines.

The program is on a single density diskette in both executable and source code formats. Instructions are included for double-density option modification. Documentation includes words and screens of definitions, including math and graphics functions, in FORTH. Price is \$29.95 plus \$3 shipping and handling.

The SofTek Company
Osborne Products Division
Box 4232
Santa Fe, NM 87502

Step Right Up, Folks

Auction blocks should certainly have a different look now that CE Software has released **The Auctioneer** software package. Designed to run on the Osborne 1, the package computerizes clerking and cashiering functions.

The program begins with the registering of bidders and ends with

an auction summary with breakdowns for gross sales, commissions, sales tax and consignor net check amounts. The software comes with an easy-to-understand user manual and does not require previous computer experience. Cost is \$600. Program is available through Osborne dealers or from:

CE Software
801 73rd St.
Des Moines, Iowa 50312

Media Conversion

Osborne material on floppies can be converted to and from 9-track computer tape as well as for many other word processors, microcomputers, magnetic cards and other media formats by the Muller-Mugno Corporation in New York City.

Applications include: converting manuscript files into the form most easily handled by a given typesetter, enabling Osborne-based data entry services to key material for IBM, Wang and other systems; capturing mailing lists from magtape; and down-loading former time-shared databases for local processing on the Osborne 1. The firm, in its fifth year of operation, also provides a number of related services.

Muller-Mugno Corporation
42 Broadway
New York, NY 10004
(212) 344-0474

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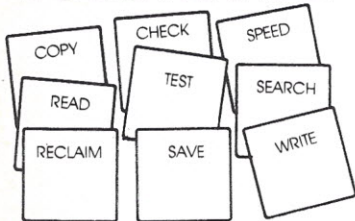
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April/May Puzzler Answer

In last month's puzzler, I gave a scenario of opening up a computer consulting business and having your first customer request a variety of options installed in WordStar and SuperCalc (NEC 8023, C.Itoh 8510 printer). Printer control codes were supplied in the puzzle and all of the programs could be solved by adapting and analyzing previously published information in the *Portable Companion*. The problems are numbered in the order they appeared in the puzzler.

1) Toggle on compressed or 12 pitch mode from SuperCalc or WordStar's keyboard.

The solution is easy for WordStar, more difficult for SuperCalc. In WordStar, use INSTALL to patch PALT:, PSTD:, USR1: as follows:

```
PALT: 02 1B 51 17 pitch/compressed print ON.  
PSTD: 02 1B 4E 10 pitch/default setting ON.  
USR1: 02 1B 45 12 pitch ON.
```

For SuperCalc, simply instruct your customer on the use of the special SETUP output option found within SuperCalc. (See *Technical Tips*, Apr/May issue.)

```
ESC E 12 pitch. Press the ESC key and then the E key.  
ESC Q 17 pitch.  
ESC N 10 pitch. Back to default 10 pitch.
```

Certain printers use codes that cannot be keyed in. If the function does not have an ASCII control code or ESC + symbol code, then use DDT to program a function key (*Technical Tips*, Apr/May.)

2) Temporarily set the line feed to 1/8 inch with SuperCalc.

```
ESC B 1/8"  
ESC A 1/6". Default setting
```

3) Permanently install compressed and boldface print in SuperCalc (different diskette).

Using SuperCalc's INSTALLS program, place hex codes 1B 51 1B 21 into the printer's initialization string. Actually, I would recommend to the customer to install just the compressed mode and use the boldfaced toggle (ESC !) under SuperCalc's SETUP option. Certainly not every spreadsheet is worth boldfacing.

4) Access the printer's graphics underline in WordStar.

Two ways to do this: patch 02 1B 58 into RIBBON: and 02 1B 59 into RIBOFF: using INSTALL. A more efficient use of limited WordStar patch

areas is to patch an 80 into the ULCHR: label. (See *I/O, I/O Part 3*, Apr/May).

5) Supply a left margin for a SuperCalc spreadsheet.

No problem, simply use an ESC L 0 1 0 to move the spreadsheet away from the left edge of the paper 10 spaces; ESC L 0 1 5 to move it over 15 spaces, etc. (Use the SETUP option as in problem #1 above.)

6) Program a function key to boot up WordStar with right margin set at 60, tabs at 10 and 30, help message at 2, and justification off.

Take a deep breath and input the following code into the function key of your choice:

```
WS TEMP<cr>DELAY^OR60<cr>^JH2<cr>^OJ<cr>^ONA<cr>
^OI10<cr>^OI30<cr>KQY<cr>
```

Its execution from the A> prompt sets the necessary parameters and then exits to the "no-file" menu. Somewhat contrived, but entertaining to see in action.

Problems 7-9 could be answered by reading Thom Hogan's & Bob Van Cleef's article *WordStar Changes* in the Dec/Jan issue. (See page 86 and last paragraph on page 96.)

7) Patch for pause between pages ON.

ADDRESS	patch
03CD	FF

8) Omit page numbers (.OP)

03D3	FF
------	----

9) Set page offset to 12 (.PO 12)

037E	12
------	----

Although not specifically requested, make your customer happy by including super/subscripts for WordStar as described in *I/O, I/O Part 3* of the Apr/May issue.

For super bonus points install the Greek character set. (Answer in *Wizard* column.)

Now all you have left to do is collect your consulting fees!

Brad Baldwin

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Appearing in the August issue:

- Copyright law for software writers
- Customizing your hardware
- Part II of Kelly Smith's joystick program
- How the deaf can expand their world with a modem

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Now That's Companionship!

Ode to Adam

To the tune of The Teacher's Lament (with apologies to Merle Travis)

Some people say a computer's made of steel
Got a brain that can think, but its body can't feel
That's not what irks me, I got much bigger gripes
Than the worries that plague all those humanist types

I got ninety-two K on my left and my right
But most of that's filled, the rest is too tight
My computer has limits, that I can see
If I run out of disk space, it's tough_____for me

CHORUS:

You work all day long and what does it get yer
A disk-full of error and a Bdos bad sector
Lord I'm in trouble, won't you help me please
Kindly ask Adam for my double den-sities

My publisher called, said my future's a waste
Cause my best-selling novel just got erased
This must be a nightmare, it's worse than a dream
Oh why'd I ever sell my type-writin' machine?

CHORUS:

You work all day long and what does it get yer
A disk-full of error and a Bdos bad sector
Lord I'm in trouble, won't you help me please
Kindly ask Adam for my double den-sities

Now I've tried to be patient, done my best to be fair
I've waited so long, got grey in my hair
Adam's got his troubles, I've got mine
Like not getting my disk drives upgraded on time

CHORUS:

You work all day long and what does it get yer
A damn disk-full of error and a Bdos bad sector
Lord don't forsake me, I need your help please
Make Adam give me those double den-sities

David Kline

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The EXMON external monitor adapter is designed for the Osborne 1 computer system, and enables the use of any standard video monitor with the Osborne 1 computer.

A coaxial type video cable is required for the high data rates transmitted by the Osborne 1. This quality cable enhances the display.

The EXMON II is a combination package and includes the EXMON and a UHF modulator. This allows the use of television sets as monitors without "hard wire" connections to the television set.

Padded carrying case to protect and ease handling and carrying.



The KEYBOARD EXTENDER cable is intended to increase the freedom of movement for the keyboard of the Osborne 1. This cable plugs into the Osborne 1 keyboard connector and then the keyboard cable plugs into the other end. The standard length is 24".

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These products are in stock at local dealers. You may contact JMM directly for assistance. Overseas shipments are no problem.